

SERVICE MANUAL

FE-1A CHASSIS

MODEL	COMMANDER	DEST	CHASSIS NO.	MODEL	COMMANDER	DEST	CHASSIS NO.
KV-21FX20A	RM-887	Italian	SCC-Q32D-A	KV-21FX20E	RM-887	Spanish	SCC-Q34D-A
KV-21FX20B	RM-887	French	SCC-Q33D-A	KV-21FX20K	RM-887	OIRT	SCC-Q36E-A
KV-21FX20D	RM-887	AEP	SCC-Q31D-A	KV-21FX20R	RM-887	OIRT	SCC-Q36F-A



TRINITRON® COLOR TV
SONY®



ITEM MODEL	Television System	Stereo System	Channel Coverage	Color System
Italian	B/G/H	GERMAN Stereo	ITALIA VHF : A-H2 (C) UHF : 21-69 PAL B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
French	B/G/H, D/K, L, I	GERMAN/NICAM Stereo	L VHF : F02-F10 UHF : F21-F60 CABLE : B-Q B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF : A-H2 (C) UHF : 21-69 I UHF : B21-B69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
AEP	B/G/H	GERMAN Stereo	PAL B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF : A-H2 (C) UHF : 21-69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
Spanish	B/G/H	GERMAN/NICAM Stereo	PAL B/G VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10 ITALIA VHF : A-H2 (C) UHF : 21-69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)
OIRT	B/G/H, D/K	KV-21FX20K GERMAN/NICAM Stereo KV-21FX20R GERMAN Stereo	B/G/H VHF : E2-E12 UHF : E21-E69 CABLE TV (1) : S1-S41 D/K VHF : R01-R12 UHF : R21-R69	PAL, SECAM NTSC4.43, NTSC3.58 (VIDEO IN)

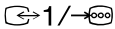
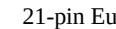
MODEL	21FX20A	21FX20B	21FX20D	21FX20E	21FX20K	21FX20R
Power Consumption	80W	80W	80W	80W	80W	80W

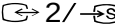
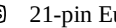
[PICTURE TUBE] FD Trinitron
Approx. 55cm (21 inches)
(Approx. 51cm picture measured diagonally)
110 degree deflection

[FRONT]
 3 Video input - phono jack
 3 Audio inputs - phono jacks
 Headphone jacks : stereo minijack

Input/Output Terminals

[REAR]

 1/  21-pin Euro connector (CENELEC standard).
- Inputs for Audio and Video signals.
- Inputs for RGB.
- Outputs of TV Video and Audio signals.

 2/  21-pin Euro connector.
- inputs for Audio and Video signals.
- inputs for S Video.
- outputs for Audio and Video signals (selectable).
 Phono Jack
- Outputs for Audio Signals

Sound output 2 x 7W (RMS)
Power requirements 220 - 240V
Dimensions Approx 545x446x485mm (w/h/d)
Weight Approx 26.5kg
Supplied accessories RM-887 Remote Commander (1)
IEC designated R6 battery (2)
Other features NICAM*, FASTEXT, TOPTXT
*(KV-21FX20B/21FX20E/21FX20K only)

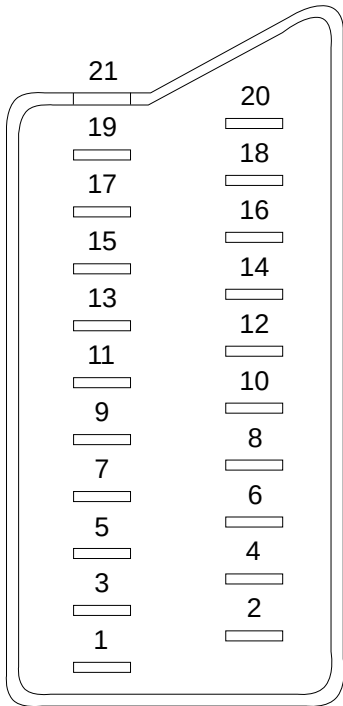
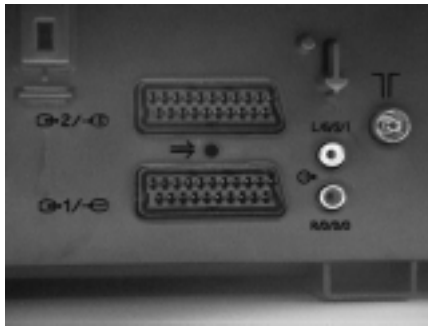
[RM-887]

Remote control system Infrared control
 Power requirements 3V dc
 2 batteries IEC designation
 R6 (size AA)
 Dimensions Approx 44x209x23mm (w/h/d)
 Weight Approx 89g (Not including battery)

Design and specifications are subject to change without notice.

Model Name						
Item	KV-21FX20A	KV-21FX20B	KV-21FX20D	KV-21FX20E	KV-21FX20K	KV-21FX20R
Pal Comb	OFF	OFF	OFF	OFF	OFF	OFF
PIP	OFF	OFF	OFF	OFF	OFF	OFF
RGB Priority	OFF	ON	ON	ON	OFF	OFF
Woofer Box	OFF	OFF	OFF	OFF	OFF	OFF
Scart 1	ON	ON	ON	ON	ON	ON
Scart 2	ON	ON	ON	ON	ON	ON
Front in (3)	OFF	OFF	OFF	OFF	OFF	OFF
Scart 4	OFF	OFF	OFF	OFF	OFF	OFF
Projector	OFF	OFF	OFF	OFF	OFF	OFF
AKB in 16:9 mode	ON	ON	ON	ON	ON	ON
Norm B/G	ON	ON	ON	ON	ON	ON
Norm I	OFF	ON	OFF	OFF	OFF	OFF
Norm D/K	OFF	ON	OFF	OFF	ON	ON
Norm AUS	OFF	OFF	OFF	OFF	OFF	OFF
Norm L	OFF	ON	OFF	OFF	OFF	OFF
Norm SAT	OFF	OFF	OFF	OFF	OFF	OFF
Norm M	OFF	OFF	OFF	OFF	OFF	OFF
Teletext	ON	ON	ON	ON	ON	ON
Nicam Stereo	OFF	ON	OFF	ON	ON	OFF
Language Preset	Italian	French	German	Spanish	OIRT	OIRT

21 pin connector (↔ 1/ →⊙⊙⊙ , ↔ 2 / →S)



Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedance : Less than 1kohm*
2	○	○	○	Audio output B (right)	Standard level : 0.5V rms Output impedance : More than 10kohm*
3	○	○	○	Audio output A (left)	Standard level : 0.5V rms Output impedance : Less than 1kohm*
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level : 0.5V rms Input impedance : More than 10kohm*
7	○	●	●	Blue input	0.7 +/- 3dB, 75 ohms positive
8	○	○	○	Function select (AV control)	High state (9.5-12V) : Part mode Low state (0-2V) : TV mode Input impedance : More than 10K ohms Input capacitance : Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal : 0.7 +/- 3dB, 75 ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	-	-	Red input	0.7 +/- 3dB, 75 ohms, positive
	-	○	○	(S signal Chroma input)	0.3 +/- 3dB, 75 ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1-3V) Low state (0-0.4V) Input impedance : 75 ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
20	○	-	-	Video input	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
	-	○	○	Video input Y (S signal)	1V +/- 3dB, 75ohms, positive sync 0.3V (-3+10dB)
21	○	○	○	Common ground (plug, shield)	

○ Connected ● Not Connected (open) * at 20Hz - 20kHz



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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR THE CARBON PAINTED ON THE CRT, AFTER REMOVAL OF THE ANODE CAP

WARNING !!

AN ISOLATING TRANSFORMER SHOULD BE USED DURING ANY SERVICE WORK TO AVOID POSSIBLE SHOCK HAZARD DUE TO LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARKED  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION !!

AFIN D'EVITER TOUT RISQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENTION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ !!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE  SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT, NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÈMENTS PUBLIÉS PAR SONY.

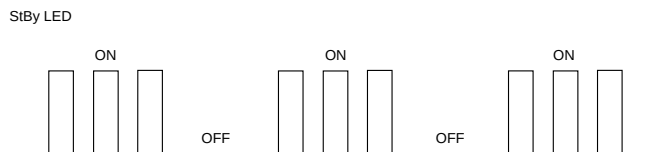
FE-1A SELF DIAGNOSTIC SOFTWARE

The identification of errors within the FE-1A chassis is triggered in one of two ways :- 1: Busy or 2: Device failure to respond to IIC. In the event of one of these situations arising the software will first try to release the bus if busy (Failure to do so will report with continuous flashing LED) and then communicate with each device in turn to establish if a device is faulty. If a device is found to be faulty the relevant device number will be displayed through the LED (Series of flashes which must be counted) See Table 1., non fatal errors are reported using this method. Each time the software detects an error it is stored within the NVM. See Table 2.

Table 1

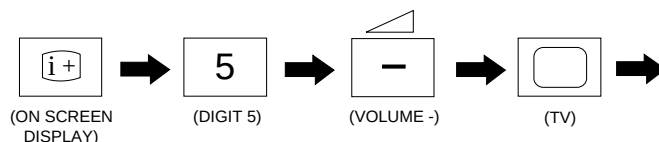
ERROR	LED ERROR COUNT
No error	00
Not allowed (may be confused with Sircs response flash!)	01
Protection circuit trip < ANY TIME >	02
Reserved	03
No vertical sync	04
AKB	05
IIC bus clock and/or data lines low at Power ON	06
NVM no IIC bus acknowledge at Power ON	07
Jungle controller no IIC acknowledge at Power ON	08
Tuner no acknowledge at Power ON	09
Sound processor no acknowledge at Power ON	10

Flash Timing Example : e.g. error number 3



How to enter into Table 2

1. Turn on the main power switch of the TV set and enter into the 'Standby Mode'.
2. Press the following sequence of buttons on the Remote Commander.



3. The following table will be displayed indicating the error count.

Table 2

Error	Times
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
10	-

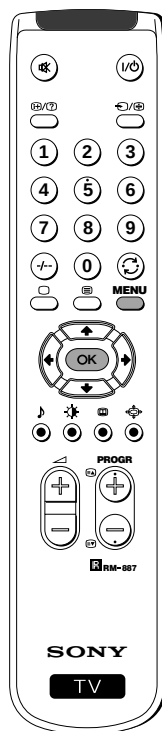
Note: To clear the error count data press '80' on the Remote commander.

The operating instructions mentioned here are partial abstracts from the 'Operating Instruction Manual'. The page numbers of the 'Operating Instruction Manual' remain as in the manual.

First Time Operation - Basic Presetting

Automatically Tuning the TV using the Remote Control

- ① You need to tune the TV to receive channels (TV Broadcast). By following the instructions below, this TV automatically searches and stores all available channels for you.
- After having selected the language, a new menu appears automatically on the TV screen asking you to automatically tune the TV. However, if you need to change or repeat the tuning afterwards (e.g. when you move house), select the menu AUTO PROGRAMME in the (SET UP) menu and proceed in the same way as described below in step 1 or, please refer to the section "Automatically Tuning the TV using the TV buttons" of this instruction manual.



- 1** Press the **OK** button on the remote control to select **YES**.
A new menu appears automatically on the screen asking you to check that the antenna is connected.

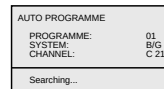


- 2** Confirm that the antenna is connected and then press the **OK** button.



The automatic tuning starts and the message "Searching..." flashes on the screen.

⚠ This procedure could take some minutes.



👉 When the automatic tuning is finished, the Programme Sorting menu appears on the TV screen.



- Notes:**
- To stop the automatic tuning, press the **MENU** button.
 - If you stop the automatic tuning by pressing the **MENU** button, the Programme Sorting menu does not appear automatically on the TV screen.



First Time Operation - Basic Presetting

Changing the Programme Order of the TV channels

- ① After all available channels (TV Broadcast) are captioned and stored, a new menu appears automatically on the screen to change the order in which the channels appear on the screen.
- However, if you wish to rearrange the order of the channels afterwards, select the menu PROGRAMME SORTING in the (SET UP) menu and proceed in the same way as described in the b) section of this chapter.

a) If you do not wish to change the channel order:

- 1** Press the **MENU** button to exit and return to the normal TV screen.



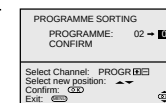
👉 Your TV is now ready for use.

b) If you wish to change the channel order:

- 1** Press the **PROGR+ or -** button until the channel (TV Broadcast) you wish to rearrange appears on the screen.



- 2** Press the **▲ or ▼** button to select the new programme number position for your selected channel (TV Broadcast), then press the **OK** button.

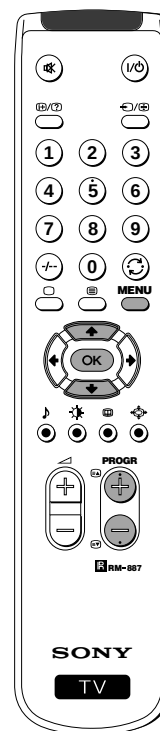


- ① The word **CONFIRM** is highlighted for a few seconds to confirm that the new programme position is stored.

- 3** Repeat steps 1 and 2 if you wish to change the order of the other channels on your TV.

- 4** Press the **MENU** button to exit and return to the normal TV screen.

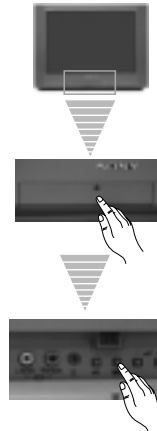
👉 Your TV is now ready for use.



Advanced Operation - Advanced Presetting

Automatically Tuning the TV using the TV buttons

- ① Besides the explanation in the section “Automatically Tuning the TV using the Remote Control”, by following the instructions below, this TV also searches and stores automatically all available channels using just one button of the TV set.

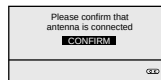


- 1 Press the flap on the front of the TV by pressing on the mark to reveal the front control panel.

- 2 Press and hold in the button on the TV set for some seconds, until a menu appears automatically on the screen asking you to check that antenna is connected.

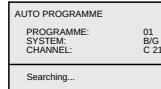


- 3 Confirm that the antenna is connected and then press the OK button.



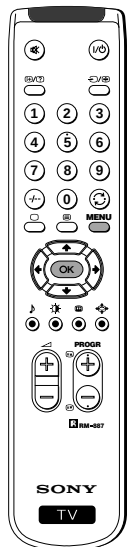
The automatic tuning starts and the message “Searching...” flashes on the screen.

This procedure could take some minutes.



When the automatic tuning procedure is complete, the menu disappears from the TV screen and your TV is now ready for use.

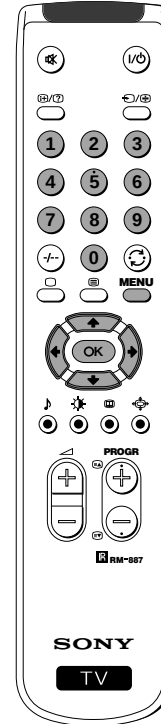
Note: To stop the automatic tuning, press the MENU button on the remote control.



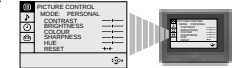
Advanced Operation - Advanced Presetting

Manually Tuning the TV

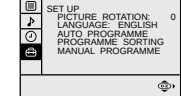
- ① Use this function to preset channels or a video input source one by one to the programme order of your choice.



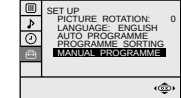
- 1 Press the MENU button on the remote control to display the menu on the TV screen.



- 2 Press the button to select the symbol, then press the button to enter to the SET UP menu.



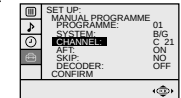
- 3 Press the button to select MANUAL PROGRAMME, then press the button.



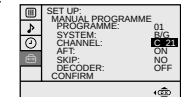
- 4 With the cursor highlighting PROGRAMME, press the button and then, press the or button to select on which programme number you want to preset a channel. Press the button.



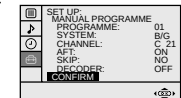
- 5 Press the button to select CHANNEL, then press the button. Press or button to select the channel tuning, “C” for terrestrial channels or “S” for cable channels. Press the button.



- 6 Press the number buttons to enter the channel number of the TV Broadcast or press the or button to search for the next available channel. If you do not wish to store this channel, press the or button to continue searching for the desired channel.



- 7 If this is the desired channel you wish to store, press the OK button and then, with the cursor highlighting CONFIRM, press the OK button again.



- 8 Repeat steps 4 to 7 if you wish to store more channels.

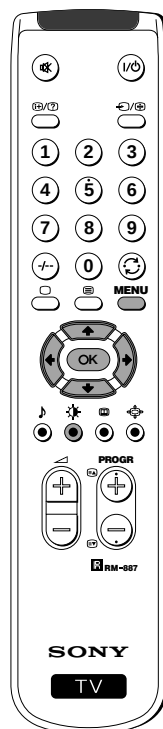
- 9 Press the MENU button to exit and return to the normal TV screen.

Your TV is now ready for use.

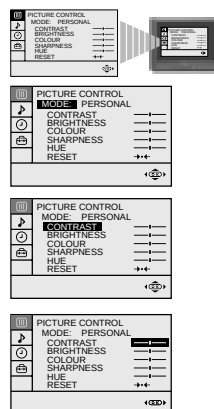
Advanced Operation - Advanced TV Operation

Adjusting the Picture

Although the picture is adjusted at the factory, you can modify it to suit your own taste.

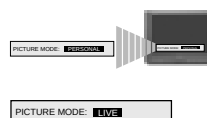


- Press the **MENU** button on the remote control to display the menu on the TV screen.
 - Press the **▶** button to enter to the **PICTURE CONTROL** menu.
 - Press the **◀** or **▶** button to select the item you wish to change.
 - With the cursor highlighting the item you wish to change, press the **OK** button.
(Refer to the table below for the effect of each control).
- | PICTURE CONTROL | OPERATION / EFFECT |
|-----------------|---|
| MODE | <ul style="list-style-type: none"> PERSONAL (for individual settings) LIVE (for live broadcast programmes) MOVIE (for films) |
| CONTRAST | Less ◀ ▶ More |
| BRIGHTNESS* | Darker ◀ ▶ Brighter |
| COLOUR* | Less ◀ ▶ More |
| SHARPNESS* | Softer ◀ ▶ Sharper |
| HUE** | Greenish ◀ ▶ Reddish |
| RESET | Resets picture to the factory preset levels. |
- * Can be only altered if PERSONAL MODE is selected.
** Only available for NTSC colour signal (e.g. US video tapes).
- Press the **◀** or **▶** button to alter the selected item, then press the **OK** button to store the new adjustment.
 - Repeat steps 3 to 5 to alter the other items.
 - Press the **MENU** button to exit and return to the normal TV screen.



Changing Picture Mode Quickly

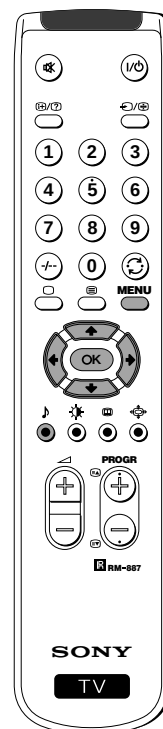
- Press the **PICTURE** button on the remote control to directly access the **PICTURE MODE**.
- Press the **▶** button to select your desired picture mode (PERSONAL, LIVE or MOVIE).



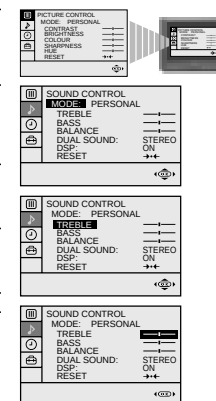
Advanced Operation - Advanced TV Operation

Adjusting the Sound

Although the sound is adjusted at the factory, you can modify it to suit your own taste.

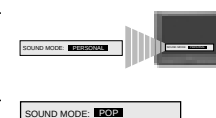


- Press the **MENU** button on the remote control to display the menu on the TV screen.
 - Press the **▶** button to select the **▶** symbol, then press the **▶** button to enter to the **SOUND CONTROL** menu.
 - Press the **◀** or **▶** button to select the item you wish to change.
 - With the cursor highlighting the item you wish to change, press the **OK** button.
(Refer to the table below for the effect of each control).
- | SOUND CONTROL | OPERATION / EFFECT |
|-------------------------------|---|
| MODE | <ul style="list-style-type: none"> PERSONAL (for individual settings) JAZZ POP ROCK |
| TREBLE* | Less ◀ ▶ More |
| BASS* | Less ◀ ▶ More |
| BALANCE | Left ◀ ▶ Right |
| DUAL SOUND | <ul style="list-style-type: none"> For a stereo broadcast: <ul style="list-style-type: none"> MONO STEREO For a bilingual broadcast: <ul style="list-style-type: none"> A (for channel 1 or Mono sound) B (for channel 2) |
| DSP (Digital sound Processor) | ON ◀ ▶ OFF |
| RESET | Resets sound to the factory preset levels. |
- * Can be only altered if PERSONAL MODE is selected.
- Press the **◀** or **▶** button to alter the selected item, then press the **OK** button to store the new adjustment.
 - Repeat steps 3 to 5 to alter the other items.
 - Press the **MENU** button to exit and return to the normal TV screen.



Changing Sound Mode Quickly

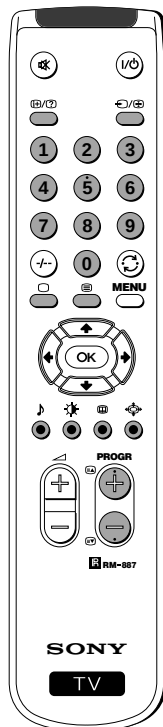
- Press the **SOUND** button on the remote control to access directly to the **SOUND MODE**.
- Press the **▶** button to select your desired sound mode (PERSONAL, JAZZ, POP or ROCK).



Teletext

Viewing Teletext

- ① Teletext is an information service transmitted by most TV stations.
- ⚠ Make sure to use a TV channel with a strong signal, otherwise teletext errors may occur.



Selecting Teletext

- 1 Select the TV channel which carries the teletext service you wish to view.
- 2 Press the button on the remote control to switch on the teletext.
- 3 Input three digits for the page number, using the numbered buttons on the remote control. (if you have made a mistake, type in any three digits and then, re-enter the correct page number).
- 4 Press the button to switch off teletext.



Using other Teletext functions

TO	PRESS THE BUTTON
Access the next or preceding page	for next page or for the preceding page
Superimpose teletext on to the TV	Press again to cancel teletext mode.
Freeze a teletext page	Press again to cancel the freeze.
Reveal concealed information (e.g: answer to a quiz)	Press again to cancel.



Using Fastext

- ① Fastext lets you access pages with one button stroke.

When Fastext is broadcast, a colour coded menu appears at the bottom of the teletext page. Press the colour button (red, green, yellow or blue) on the remote control to access the corresponding page.

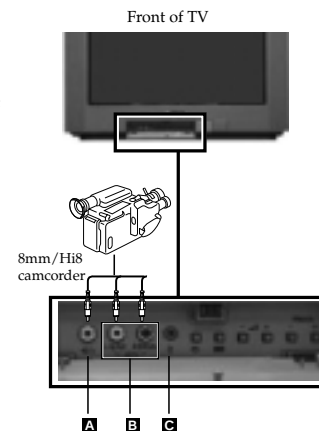
Optional Connections

Using Optional Equipment

- ① You can connect optional audio or video equipment to your TV, such as a VCR, a camcorder or a video game as shown below.

Select and View the Input Signal

- 1 Connect your equipment to the designated TV socket.
 - 2 Press the button repeatedly on your remote control until the correct input symbol appears on the TV screen.
- | Symbol | Input signals |
|--------|--|
| | • Audio/video input signal through the Euro AV connector E |
| | • RGB input signal through the Euro AV connector E |
| | • Audio/video input signal through the Euro AV connector D |
| | • S video input signal through the Euro AV connector D |
| | • Video input signal through the phono socket A and Audio input signal through B |
- 3 Switch on the connected equipment.
 - 4 To return to normal TV picture, press the button on the remote control.



Additional Information

Connecting a VCR

Plug in VCR to the socket **E** on the rear of the TV set. We recommend you tune in the VCR signal to TV programme number '0' using the section "Manually Tuning the TV" of this instruction manual.

Connecting Headphones

Plug in your headphones to the socket **C** on the front of the TV set.

Connecting Decoders

Plug in decoders to the socket **E** on the rear of the TV.

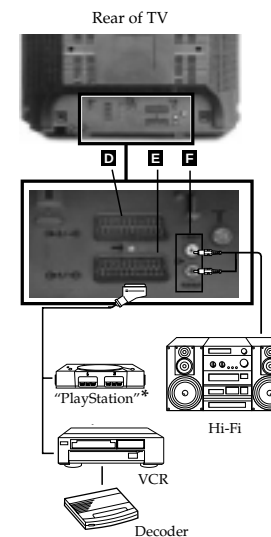
Connecting to External Audio Equipment

Plug in your Hi-Fi equipment to the **F** sockets on the rear of the TV if you wish to amplify the audio output from the TV.

For Mono Equipment

Connect the phono plug to the L/G/S/I socket on the front of the TV and select 2 input signal using the instructions above. Finally, refer to the "Adjusting the Sound" section of this manual and select "A" on the sound menu screen.

- * "PlayStation" is a product of Sony Computer Entertainment, Inc.
 * "PlayStation" is a trademark of Sony Computer Entertainment, Inc.



Additional Information

Troubleshooting

 Here are some simple solutions to the problems which may affect the picture and sound.

Problem	Solution
No picture (screen is dark), no sound	- Plug the TV in. - Press the  button on the front of TV. - If the  indicator is on, press  button or a programme number button on the remote control. - Check the aerial connection. - Check that the selected video source is on. - Turn the TV off for 3 or 4 seconds and then turn it on again using the  button on the front of the TV.
Poor or no picture (screen is dark), but good sound	- Using the MENU system, select the Picture Adjustment display. Adjust the brightness, picture and colour balance levels. - From the Picture Adjustment display select RESET to return to the factory settings.
Poor picture quality when watching a RGB video source.	Press the  button repeatedly on the remote control until the RGB symbol  is displayed on the screen.
Good picture, no sound	- Press the  +/- button on the remote control. - If  is displayed on the screen, press the  button on the remote control.
No colour on colour programmes	- Using the MENU system, select the Picture Adjustment display. Adjust the colour balance. - From the Picture Adjustment display select RESET to return to the factory settings.
Distorted picture when changing programmes or selecting teletext	Turn off any equipment connected to the 21 pin Euro connector on the rear of the TV.
Noisy picture when viewing TV channel	Adjust Fine Tuning to obtain better picture reception.
Remote control does not function	Replace the batteries.
The standby indicator  on the TV flashes even though the "Wake Up Timer" function is not use.	Contact to your nearest Sony service centre.

-  • If you continue to have these problems, have your TV serviced by qualified personnel.
• NEVER open the casing yourself.

Additional Information

Specifications

TV system

B/G/H

Colour system

PAL, SECAM

NTSC 3.58, 4.43 (only Video In)

Channel coverage

VHF: E2-E12

UHF: E21-E69

CATV: S1-S20

HYPER: S21-S41

Picture tube

Flat Display Trinitron

Approx. 55 cm (21 inches) (Approx. 51 cm picture measured diagonally), 90° deflection

Rear Terminals

 1/-

21-pin Euro connector (CENELEC standard) including audio/video input, RGB input, TV audio/video output

 2/-

21-pin Euro connector (CENELEC standard) including audio/video input, S-video input, monitor audio/video output



Audio outputs - phono jacks

Front Terminals

 3 video input - phono jack

 3 audio inputs - phono jacks

 Headphones jack - minijack stereo

Sound output

2x7 W (RMS)

Power consumption

80 W

Standby Power consumption

0.5 W

Dimensions (w x h x d)

Approx. 545 x 446 x 485 mm

Weight

Approx. 26.5 kg

Accessories supplied

1 Remote Control (RM-887)

2 Batteries (IEC designated)

Other features

TELETEXT, Fasttext, TOPtext

Sleep Timer

Wake Up Timer

Smartlink

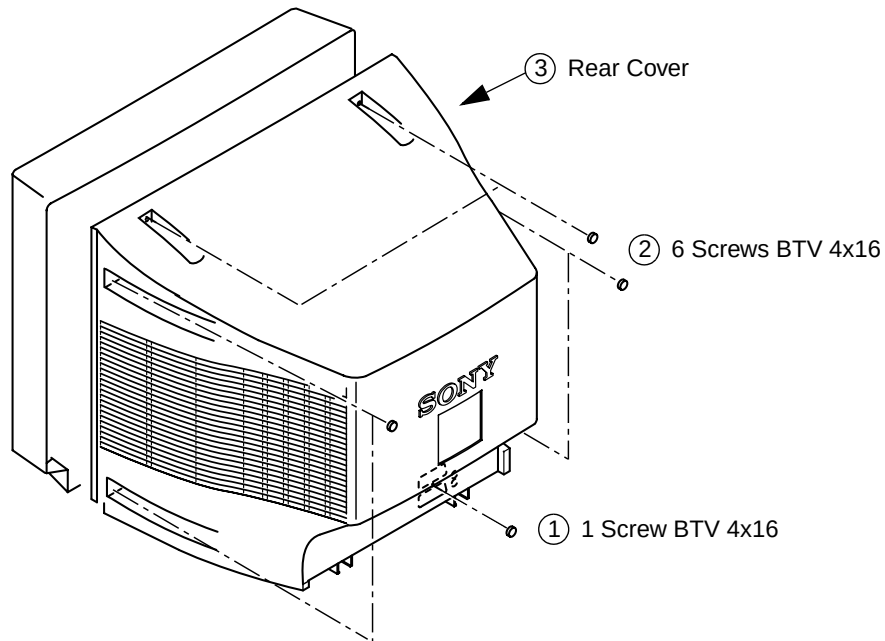
Design and specifications are subject to change without notice.

Ecological Paper - Totally Chlorine Free

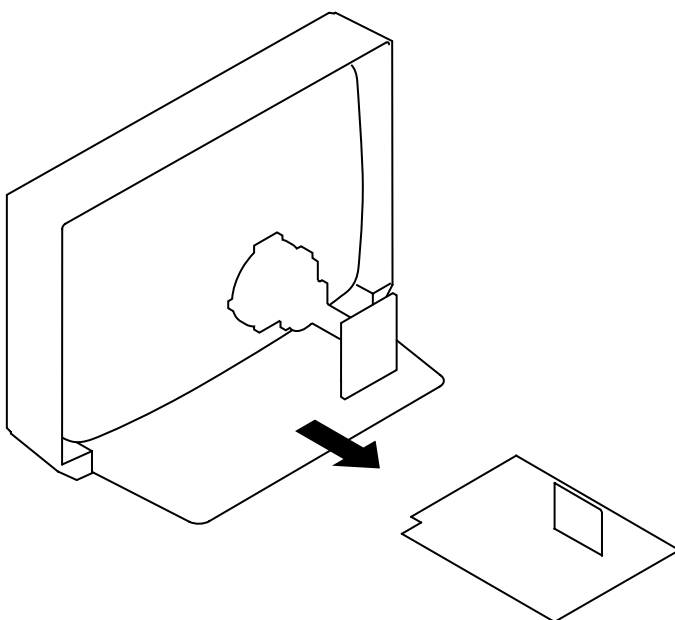


SECTION 2 DISASSEMBLY

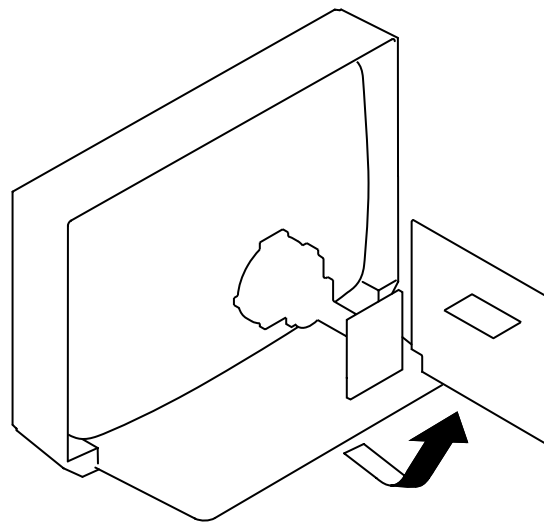
2-1. REAR COVER REMOVAL



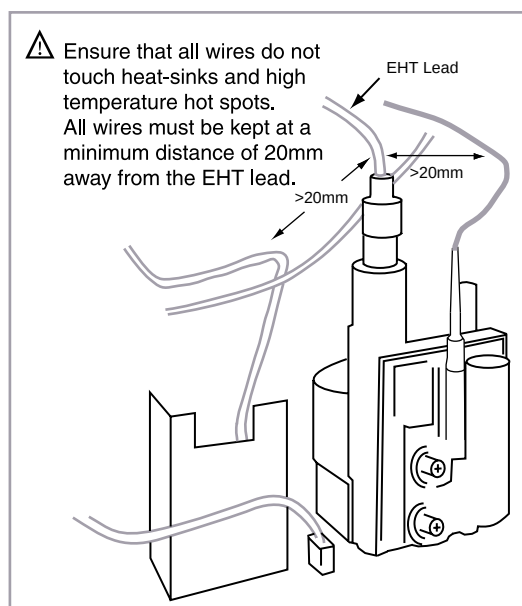
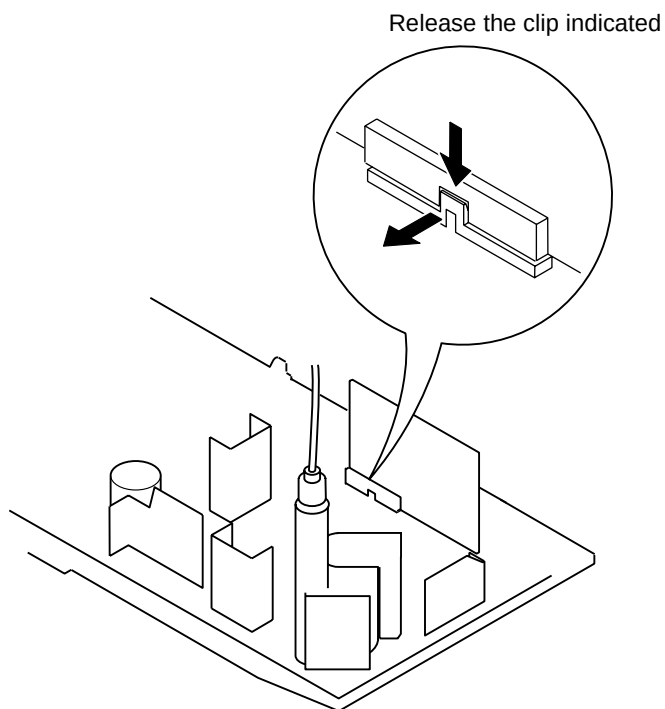
2-2. CHASSIS ASSY REMOVAL



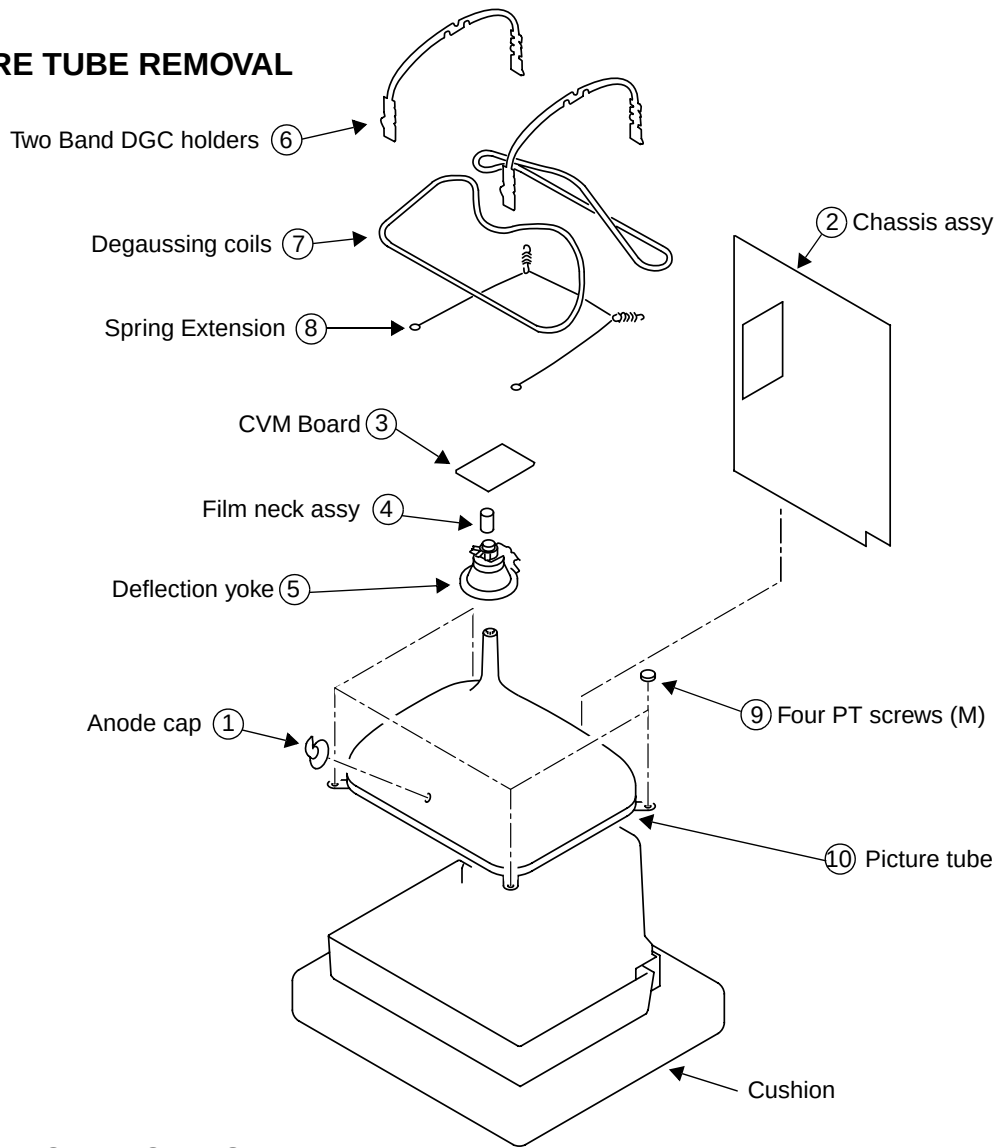
2-3. SERVICE POSITION



2-4. S1 BOARD REMOVAL



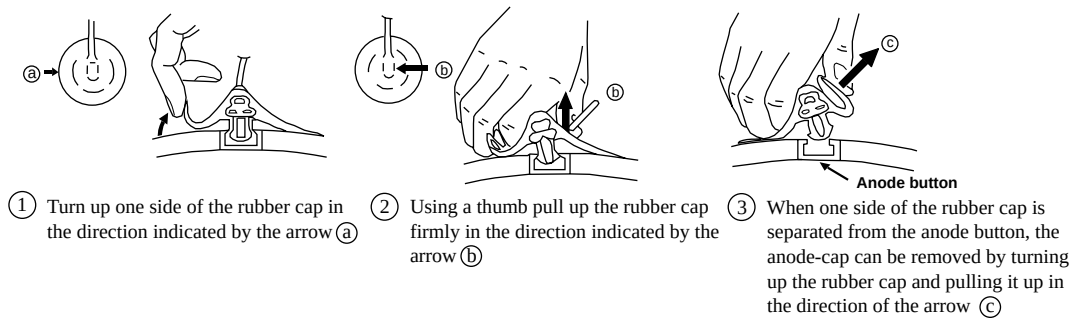
2-5. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

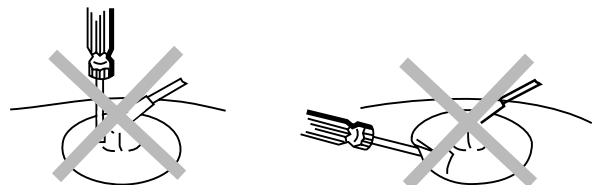
Note : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

* REMOVING PROCEDURES.



• HOW TO HANDLE THE ANODE-CAP

- To prevent damaging the surface of the anode-cap do not use sharp materials.
- Do not apply too great a pressure on the rubber, as this may cause damage to the anode connector.
- A metal fitting called a shatter hook terminal is fitted inside the rubber cap. Do not turn the rubber foot over excessively this may cause damage if the shatter hook sticks out.



2-6.REMOVAL AND REPLACEMENT OF THE MAIN-BRACKET
BOTTOM PLATES.

(1) REMOVING THE PLATES

In the event of servicing being required to the solder side of the A Board printed wiring board, the bottom plates fitted to the main chassis bracket require to be removed.
This is performed by cutting the gates with a sharp wire cutter at the locations shown and indicated by arrows.

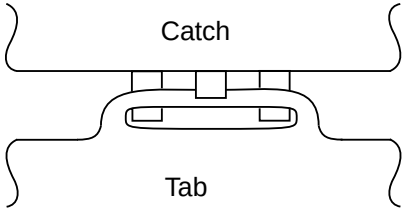
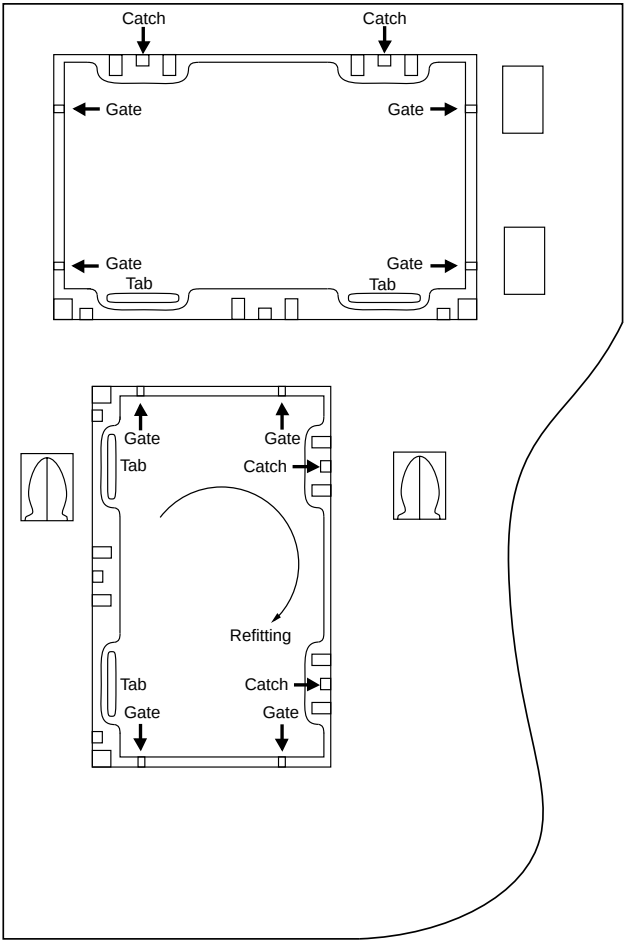
Note :There are 2 plates fitted to the main bracket and secured by 4 gates.
Only remove the necessary plate to gain access to the printed wiring board.

 For safety reasons, on no account should the plates be removed and not refitted after servicing.

(2) REFITTING THE PLATES

Because the plates differ in size it is important that the correct plates are refitted in their original location.

Please note that the plates need to be rotated 180 degrees from the cut position to allow the tabs to be fitted in the catch positions.



SECTION 3 SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there are specific instructions to the contrary, carry out these adjustments with the rated power supply.
- Unless there are specific instructions to the contrary, set the controls and switches to the following settings :

Contrast 80% [or remote control normal]
 Brightness 50%

Carry out the following adjustments in this order :

- 3-1. Beam Landing
- 3-2. Convergence
- 3-3. Focus
- 3-4. White Balance

Note : Test equipment required

1. Color bar/pattern generator.
2. Degausser.
3. Oscilloscope.
4. Digital multimeter.
5. DC Power supply.

Preparation:

1. In order to reduce the influence of geomagnetism on the set's picture tube, face it in an easterly or westerly direction.
2. Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input an all white signal from the pattern generator. Set the Contrast and Brightness to normal.
2. Set the pattern generator raster signal to Red.
3. Move the deflection yoke forward and adjust with the purity control so that the Red is at the centre and the Blue and Green take up equally sized areas on each side of the screen. [See Fig.3-1 - 3-3].
4. Move the deflection yoke backwards and adjust so that the entire screen becomes Red. [See Fig.3-1]
5. Switch the raster signal to Blue, then to Green and verify the condition.
6. When the position of the deflection yoke has been determined, fasten the deflection yoke with the screws.
7. If the beam does not land correctly in all the corners, use a magnet to correct it. [See Fig.3-4]

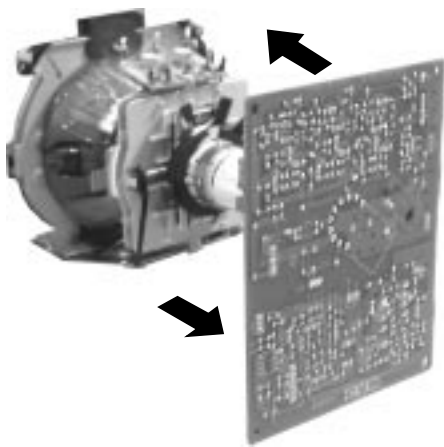


Fig. 3-1

Fig. 3-2

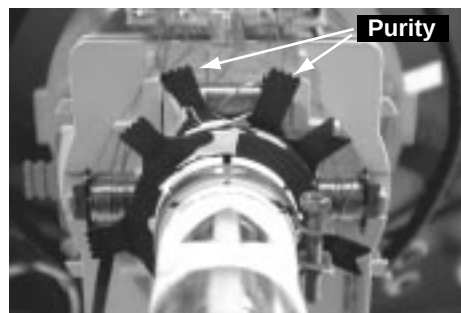


Fig. 3-3

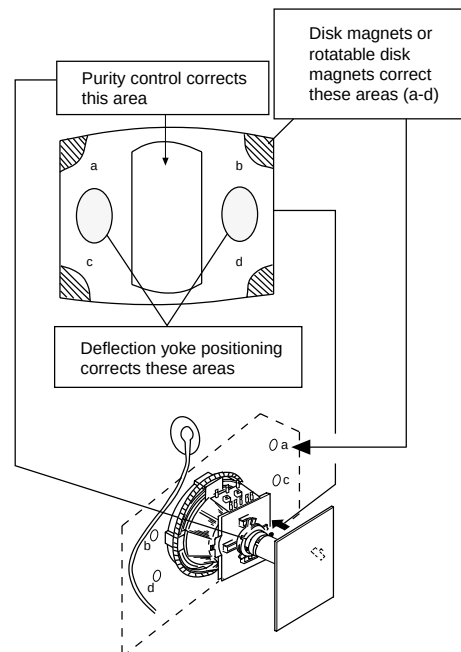
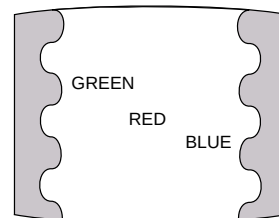


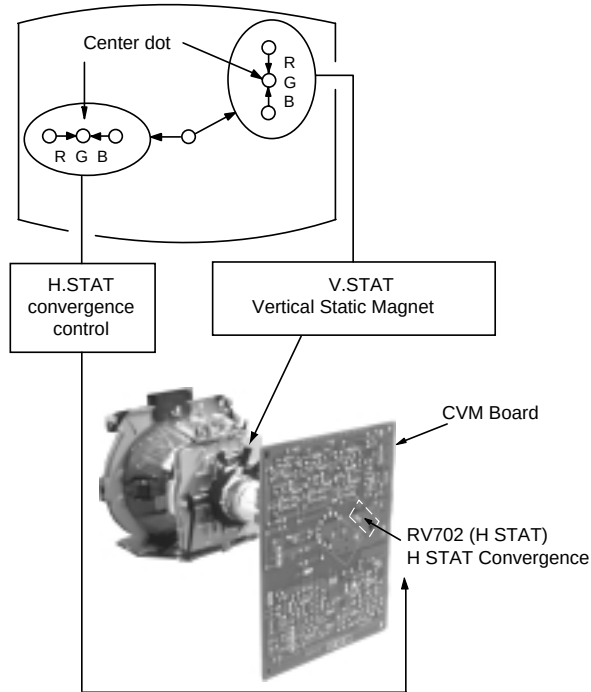
Fig. 3-4

3-2. CONVERGENCE

Preparation:

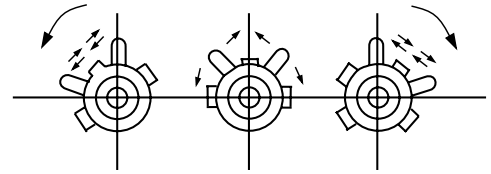
- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the Brightness setting.
- Input a dot pattern from the pattern generator.

(1) Horizontal and vertical static convergence

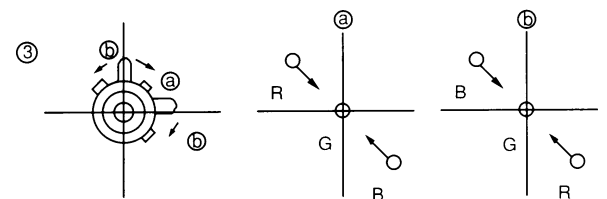
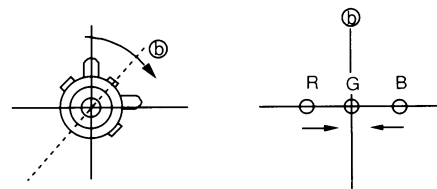
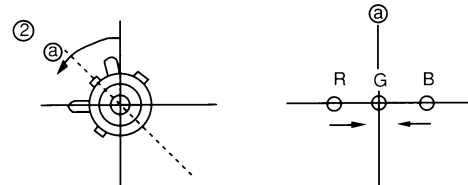
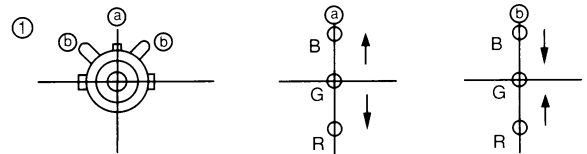


1. [Moving horizontally], adjust the H.STAT control so that the Red, Green and Blue points are on top of each other at the centre of the screen.
2. [Moving vertically], adjust the V.STAT magnet so that the Red, Green and Blue points are on top of each other at the centre of the screen.
3. If the H.STAT variable resistor is unable to bring the Red, Green and Blue points together at the centre of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner indicated below. [In this case, the H.STAT variable resistor and the V.STAT magnet influence each other].

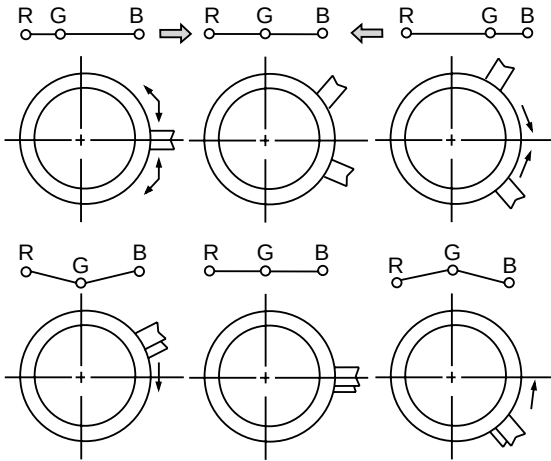
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



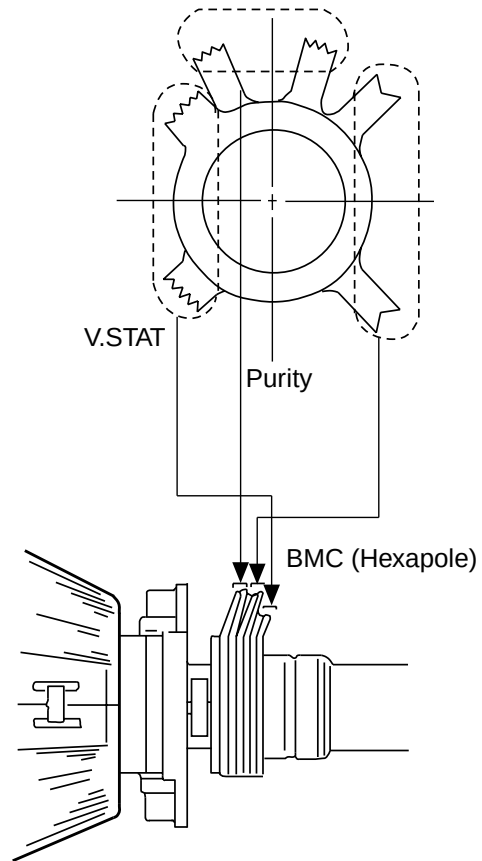
4. If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the Red, Green and Blue points move as indicated below.



- **Operation of the BMC (Hexapole) magnet.**



- The respective dot position resulting from moving each magnet interact, so be sure to perform adjustment whilst tracking.
Use the H.STAT VR to adjust the Red, Green and Blue dots so that they coincide at the centre of the screen (by moving the dots in the horizontal direction).



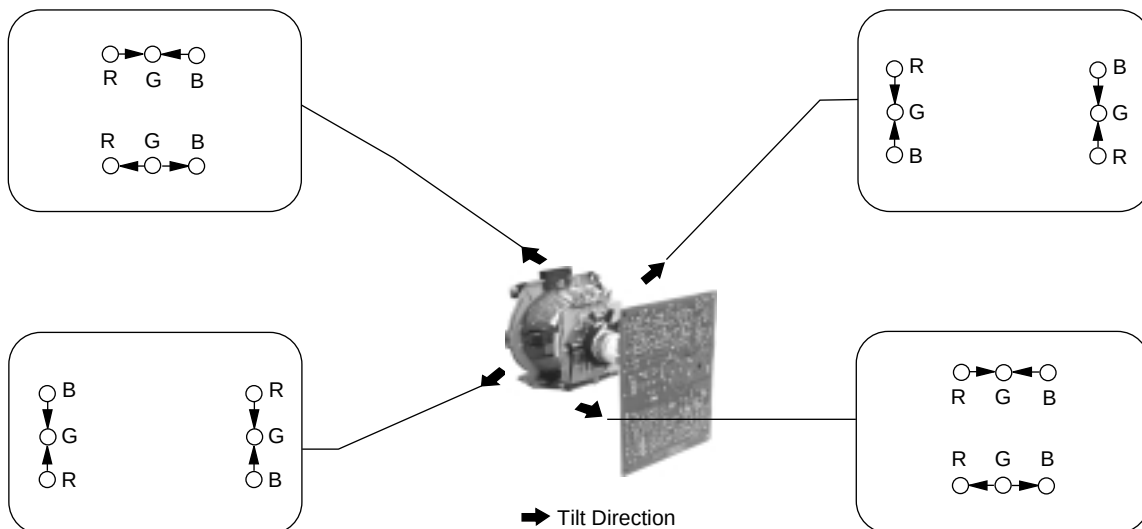
(2) Dynamic convergence adjustment.

Preparation:

- Before starting this adjustment, adjust the horizontal and vertical static convergence.
1. Remove the deflection yoke spacer.

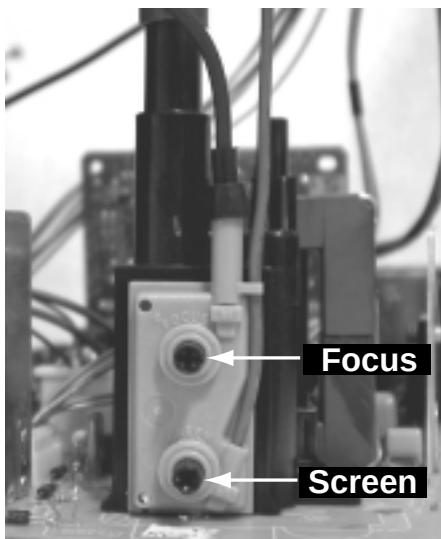
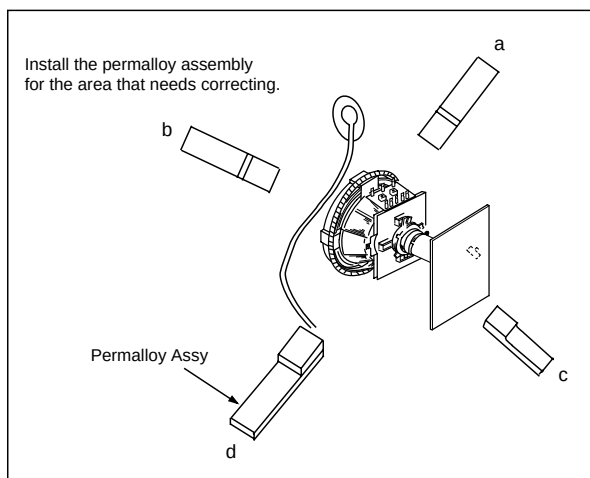
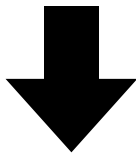
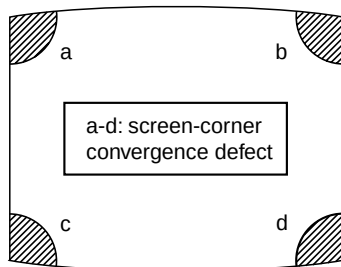
2. Tilt the deflection yoke as indicated in the figure below and optimize the convergence.
3. Re-install the deflection yoke spacer.

Note : This adjustment will affect the geometry of the display, therefore adjust to obtain the optimum setting.



(3) Screen corner convergence.

- If you are unable to adjust the corner convergence properly, correct them with the use of permalloy assemblies.



3-3. FOCUS

1. Receive a television broadcast signal.
2. Normalise the picture setting.
3. Adjust the focus control on the flyback transformer for the best focus at the centre of the screen.
Bring only the centre area of the screen into focus, the magenta ring appears on the screen. In this case, adjust the focus to optimize the screen uniformly.

3-4. WHITE BALANCE

G2 Screen Adjustment

1. Switch the TV set into AV mode [apply a cross-hatch signal].
2. Enter into the 'Service mode' and select 'Picture Control'.
3. Enter 'Picture Control' and select 'Personal' press OK.
4. Return to 'Picture Control' menu and select 'Reset'.
5. Measure the voltages on the 3 cathodes of the CRT, Kr, Kg and Kb using an oscilloscope with a 100:1 probe.
6. Connect the oscilloscope to the CRT cathode which recorded the highest voltage and adjust [RV702 SCREEN] located on the C Board to obtain a reading of 175V.

White Balance Adjustment

Note: Before carrying out the following adjustment perform the Sub Contrast adjustment indicated in Section 4 [Circuit Adjustments]

1. Input an all white signal from the pattern generator.
2. Enter into the Service Mode.
3. Enter into the 'Picture Adjustment' service menu.
4. Select the 'Green drive' and adjust so that the white balance becomes optimum.
5. Select the 'Blue drive' and adjust so that the white balance becomes optimum.
6. Press the 'TV' button on the remote commander to return to TV operation.

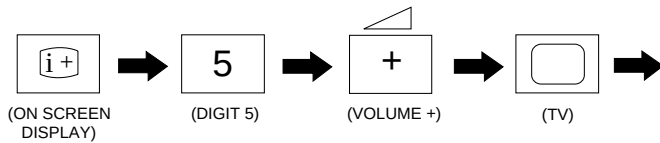
SECTION 4 CIRCUIT ADJUSTMENTS

4-1. ELECTRICAL ADJUSTMENTS

Service adjustments to this model can be performed using the supplied Remote Commander RM-887.

HOW TO ENTER INTO SERVICE MODE

1. Turn on the main power switch and enter into the stand-by mode.
2. Press the following sequence of buttons on the Remote Commander.



- 'TT--' will appear in the upper right corner of the screen. Other status information will also be displayed.
3. Press 'MENU' on the remote commander to obtain the following menu on the screen.

TEST MENU	
> Picture	
Geometry	
Sound	
TV Status	
AGC Adjust	
AGC Defeat	
Technical	

4. Move to the corresponding adjustment item using the 'Green' [up] or 'Blue' [down] buttons on the Remote Commander.
5. Press the 'Yellow' button to enter into the required menu item.
6. Press the 'Menu' button on the Remote Commander to quit the Service Mode when all adjustments have been completed.

Note : The data shown in the 'TV STATUS' table is dependant on destination and country.

PICTURE

R - Drive	Adj
G - Drive	Adj
B - Drive	Adj
R - cut - off	Adj
G - cut - off	Adj
B - cut - off	Adj
ID - start	02
ID - stop	01
ID - level	01
Bell-f0	35
Sub Colour	Adj
Sub Brightness	Adj

GEOMETRY

V centre	Adj
V size	Adj
V Lin	Adj
S Corr	Adj
H Cent	Adj
H Size	Adj
Pin Amp	Adj
Upper Pin	Adj
Lower Pin	Adj
Upper V lin	Adj
Lower V lin	Adj
Pin Phase	Adj
V Bow	Adj
V Angle	Adj
Upper V Lin	0
Lower V Lin	0
Left HBLK	12
Right HBLK	0
CD Mode (AV)	01
EHT-comp	12

SOUND

Nicam Error Lower	20
Nicam Error Upper	80
Nicam Error Rate	xx [Status only]
AGC Gain Level	xx [Status only]

TV STATUS

Destination	A/L/E/U/D/B/K/R
Text Language	East/West

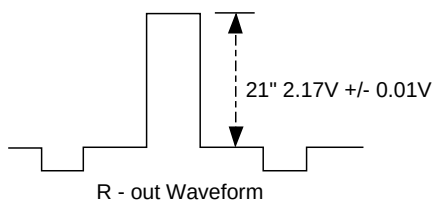
TECHNICAL	
GD - Secam	31
BD - Secam	31
RC - Secam	15
GC - Secam	15
BC - Secam	14
GD - Sports	32
BD - Sports	34
RC - Sports	14
GC - Sports	15
BC - Sports	16
Y - Delay (AV)	07

SUB BRIGHTNESS ADJUSTMENT

1. Input a Phillips colour pattern.
2. Press 'TEST' 'TEST' 13 on the Remote Commander.
3. Adjust the 'Sub-Brightness' data so that there is barely a difference between the 0 IRE and 10 IRE signal levels.

SUB CONTRAST ADJUSTMENT

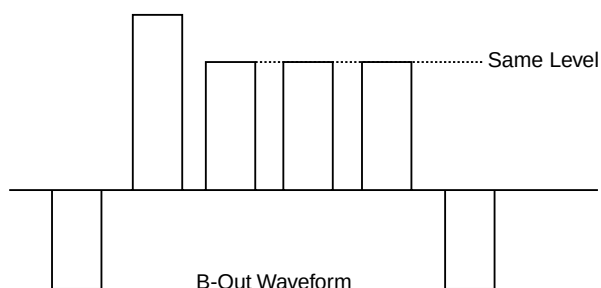
1. Input a video signal that contains a small 100% white area on a black background
2. Set the picture control to maximum. ['TT01']
3. Connect an oscilloscope to Pin 1 of CN504 [A Board].
4. Enter into the 'Picture' service menu.
5. Adjust the 'R - Drive' data to obtain the following waveform.



SUB COLOUR ADJUSTMENT

1. Receive a PAL colour bar signal.
2. Connect an oscilloscope to Pin 3 of CN504 [A Board].
3. Enter into the 'Picture' service menu.
4. Adjust the 'Sub Colour' data so that the Cyan, Magenta and Blue colour bars are of equal levels as indicated below.

Note: Ensure that no signal is applied to the Antenna socket while carrying out the following IF adjustments.



SYSTEM B/G, D/K, I & L I.F. ADJUSTMENT

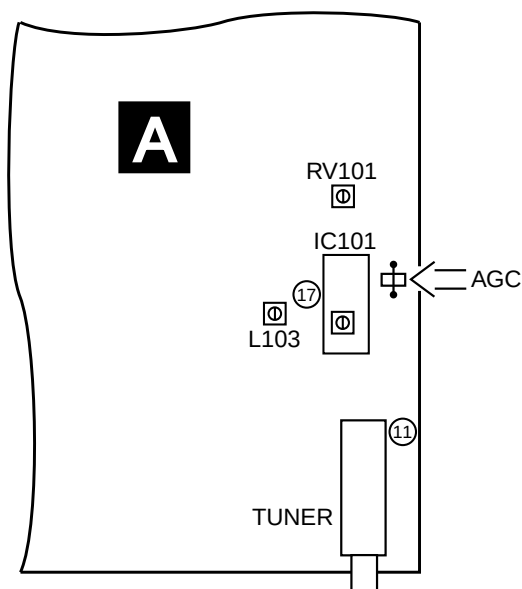
1. Input a 38.9MHz carrier signal at 100dBuV to Pin 11 [IF output] of the tuner [TU101].
2. Measure the voltage at Pin 17 of [IC101].
3. Adjust L103 [A Board] to obtain a voltage of 1.4V +/- 0.3V.

SYSTEM L BAND 1 I.F. ADJUSTMENT

1. Input a 33.9MHz carrier signal at 100dBuV to Pin 11 [IF output] of the tuner [TU101].
2. Select 'system L' + C00 [channel 00].
3. Measure the voltage at Pin 17 [IC101].
4. Adjust RV101 [A Board] to obtain a voltage of 1.4V +/- 0.3V.

TUNER AGC ADJUSTMENT

1. Receive a signal of 64dBuV / 75 ohm terminated [62dBuV / 75 ohm for B model] via the tuner antenna socket.
2. Connect a voltmeter to JW L104 [A Board].
3. Enter into the 'Test Menu'.
4. Select the 'AGC Adjust' menu item.
5. Adjust the data using the Yellow and Green buttons on the Remote Commander to obtain a voltage of 3.5V +/- 0.3V.

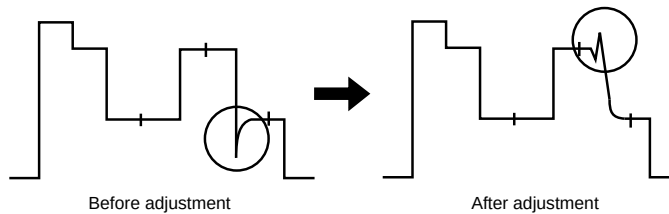


A Board component side

BELL FILTER ADJUSTMENT (Secam models only)

Note : Ensure that the TV set has been powered up for at least 1 minute to allow for drift before carrying out the following adjustment.

1. Input a video SECAM Colour Bar signal via AV1.
2. Connect an oscilloscope to pin 1 of CN504 [R-OUT] on the A board.
3. Enter into the 'Picture' menu and select 'Bell-f0'.
4. Decrease the register of 'Bell-f0' until the following waveform change between RED and BLUE is obtained.



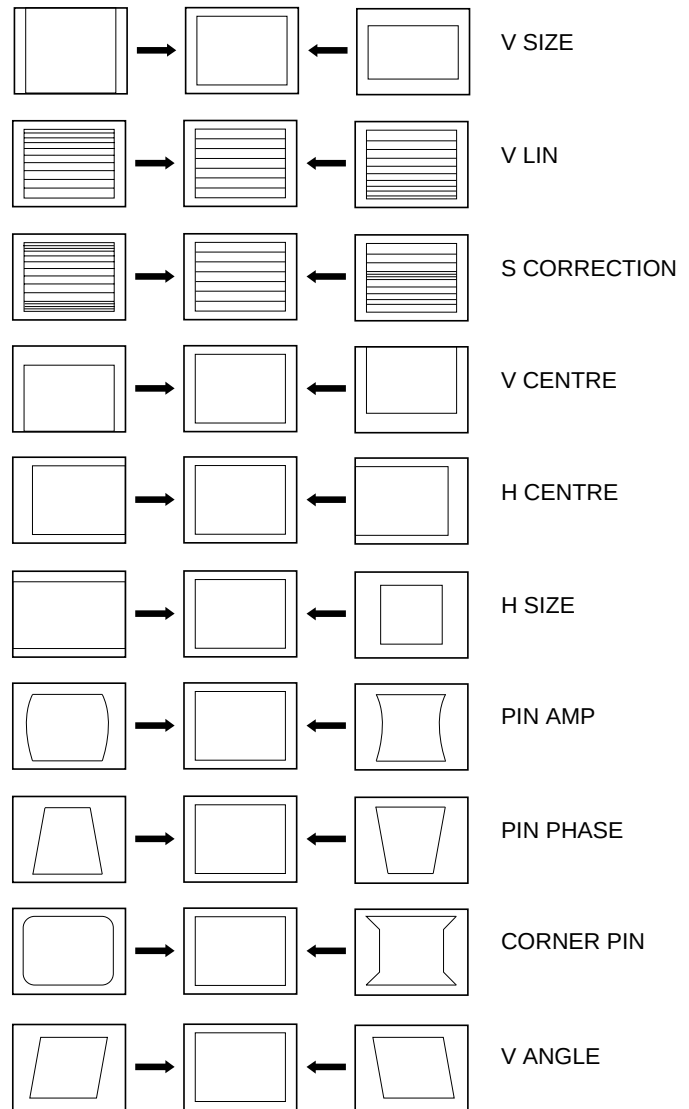
5. When the correct waveform has been obtained add an additional 7 steps to the register.

DEFLECTION SYSTEM ADJUSTMENT

1. Enter into the 'Geometry' service menu.
2. Select and adjust each item in order to obtain the optimum image.

GEOMETRY

V centre	Adj
V size	Adj
V Lin	Adj
S Corr	Adj
H Cent	Adj
H Size	Adj
Pin Amp	Adj
Upper Pin	Adj
Lower Pin	Adj
Upper V lin	Adj
Lower V lin	Adj
Pin Phase	Adj
V Bow	Adj
V Angle	Adj
Upper V Lin	0
Lower V Lin	0
Left HBLK	12
Right HBLK	0
CD Mode (AV)	01
EHT-comp	12



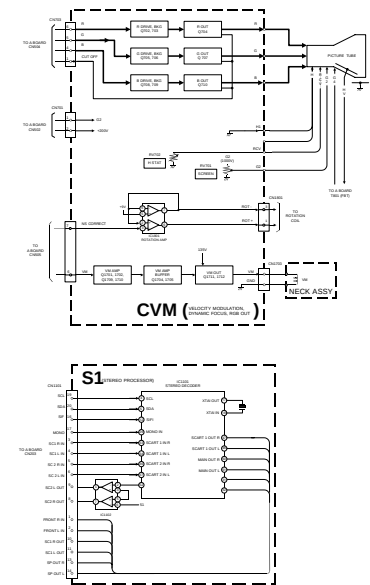
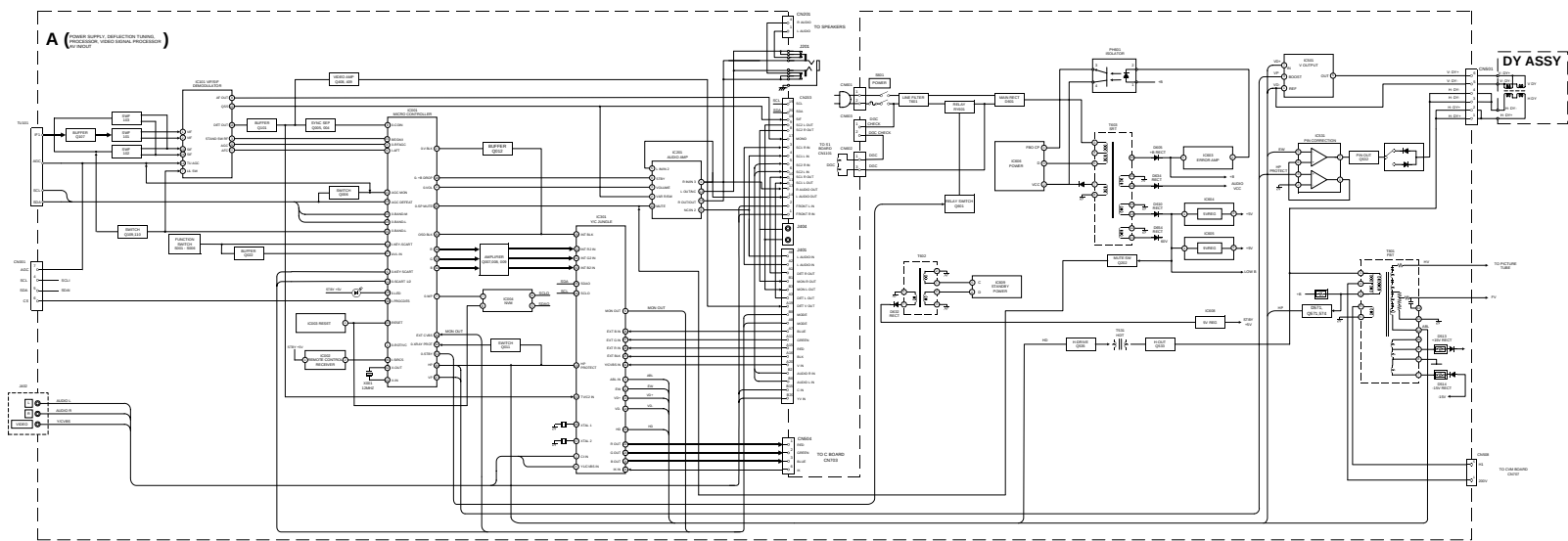
4-2. TEST MODE 2:

Is available by pressing 'TEST' button twice, OSD 'TT' appears. The functions described below are available by pressing the two numbers. To release the Test mode 2, press 0 twice, or switch the TV into stand-by mode, or press the ☐ TV button on the remote commander.

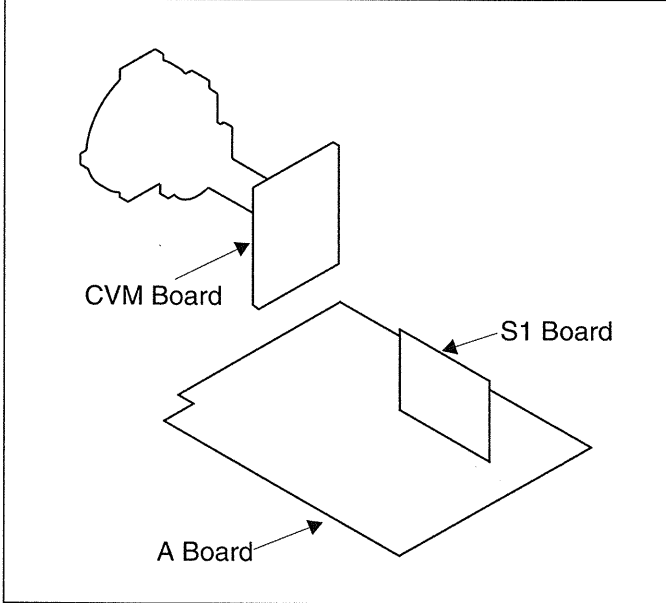
00	Cancel Test mode
01	Picture maximum
02	Picture minimum
03	Volume 35%
04	Volume 50%
05	Volume 65%
06	Volume 80%
07	Ageing mode On/Off
08	Set shipping conditions
09	Display TV Status
10	No function
11	Sub Picture Adjustment
12	Sub Colour Adjustment
13	Sub Brightness Adjustment
14	Text H position Adjustment
15	Rotation test
16	Picture level 50%
17	Audio mute ON
18	Disable Blanking
19	Toggle Factory Mode
20	No function
21	Destination A
22	Destination L
23	Destination E
24	Destination U
25	Destination D
26	Destination B
27	Destination K
28	Destination R
29	No function
30	No function
31	Auto shutoff Disable/Enable
32	RGB priority Disable/Enable
33	Rotation On/OFF
34	Text language East/West
35	Wide CRT/4:3 CRT
36	VM ON/OFF test
37	No function
38	No function
39	No function
40	No function
41	Re-initialize the NVM [Only when Prog=59]

42	Re-initialise geometry settings [Only when Prog=59]
43	No function
44	No function
45	No function
46	No function
47	No function
48	Set NVM as NON Virgin [Only when Prog=59]
49	Set NVM as Virgin [Only when Prog=59]
50	No function
51	No function
52	No function
53	No function
54	No function
55	No function
56	No function
57	No function
58	No function
59	No function
60	No function
61	Auto AGC Adjust
62	Alternative Dest B Autotuning
63	Enable/Disable Y/C input
64	Signal Quality Check for Auto Tune
65	Signal Quality NOT Checked for Auto Tune
66	No function
67	Manual AGC Adjust
68 -100	No function

5-1. BLOCK DIAGRAMS



5-2. CIRCUIT BOARD LOCATION



5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note :

- All capacitors are in μF unless otherwise noted.
- μF : μF 50VV or less are not indicated except for electrolytic types.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm
Electrical power rating : 1/4W

- Chip resistors are 1/10W
- All resistors are in ohms.
k = 1000 ohms, M = 1000,000 ohms

- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel designation or adjustment for repair.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in Volts.
- Readings are taken with a 10Mohm digital multimeter.
- Readings are taken with a color bar input signal.
- Voltage variations may be noted due to normal production tolerances.

- : B + bus.
- : B - bus.
- : RF signal path.
- : earth - ground.
- : earth - chassis.

Reference Information

RESISTOR	RN	: METAL FILM
	RC	: SOLID
	FPRD	: NON FLAMMABLE CARBON
	FUSE	: NON FLAMMABLE FUSIBLE
	RS	: NON FLAMMABLE METAL OXIDE
	RB	: NON FLAMMABLE CEMENT
	RW	: NON FLAMMABLE WIREWOUND
		: ADJUSTMENT RESISTOR
COIL	LF-8L	: MICRO INDUCTOR
CAPACITOR	TA	: TANTALUM
	PS	: STYROL
	PP	: POLYPROPYLENE
	PT	: MYLAR
	MPS	: METALIZED POLYESTER
	MPP	: METALIZED POLYPROPYLENE
	ALB	: BIPOLAR
	ALT	: HIGH TEMPERATURE
	ALR	: HIGH RIPPLE

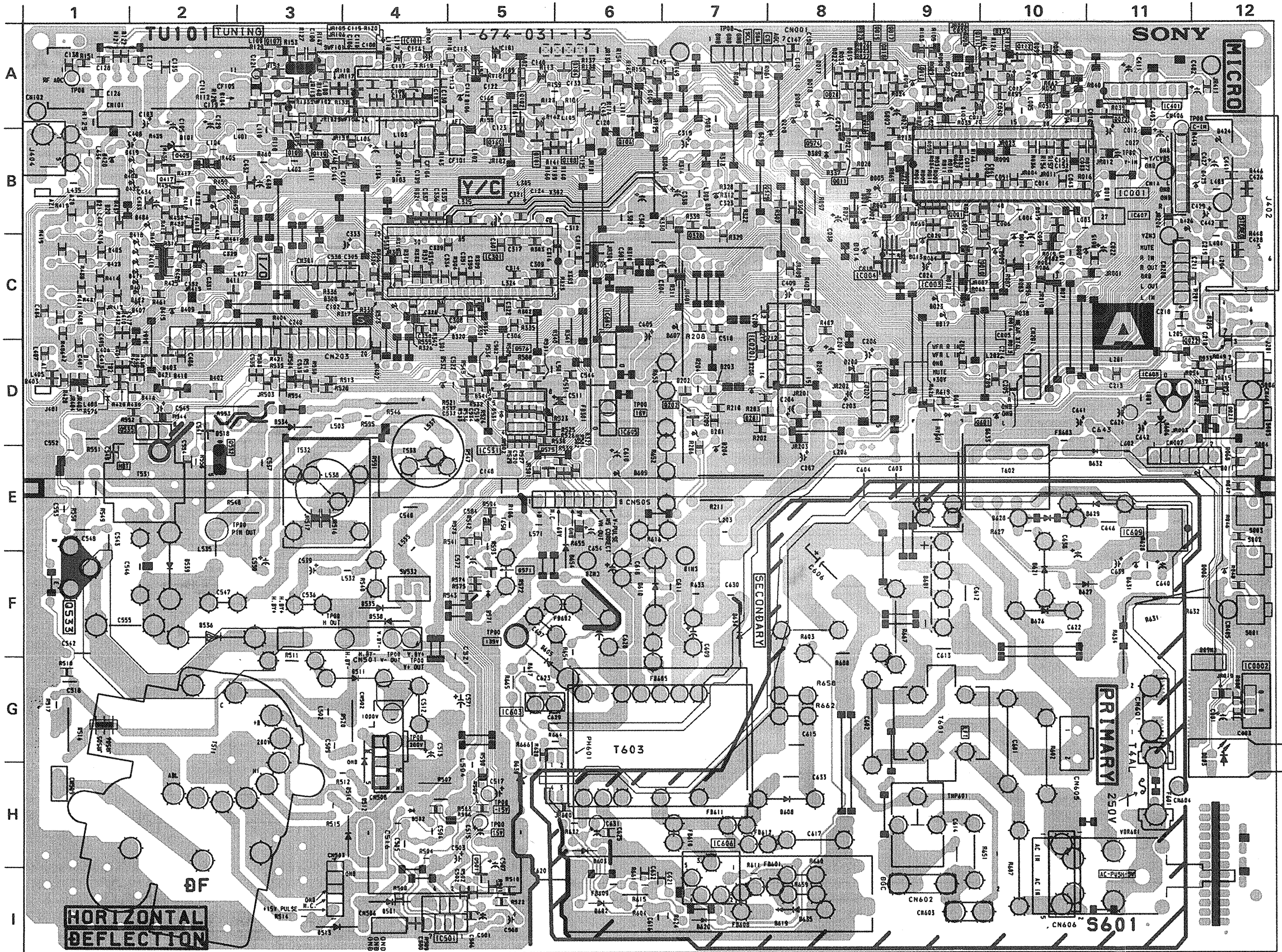
Note : The components identified by shading and marked are critical for safety. Replace only with the part numbers specified in the parts list.

Note : Les composants identifiés par une trame et par une marque sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces de numéro spécifié.

A

POWER SUPPLY, DEFLECTION, TUNING, PROCESSOR
VIDEO SIGNAL PROCESSOR, AV IN/OUT

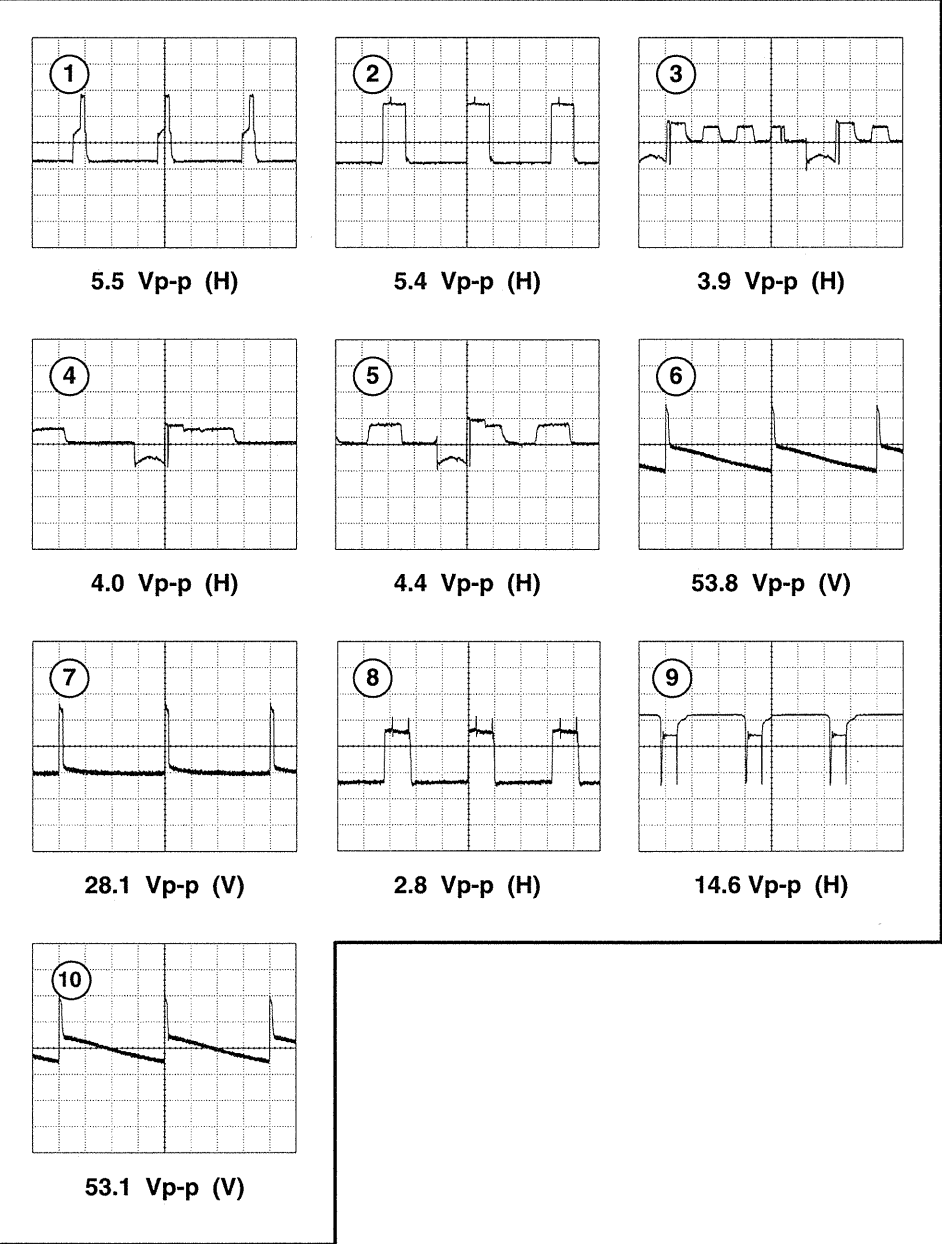
A Board

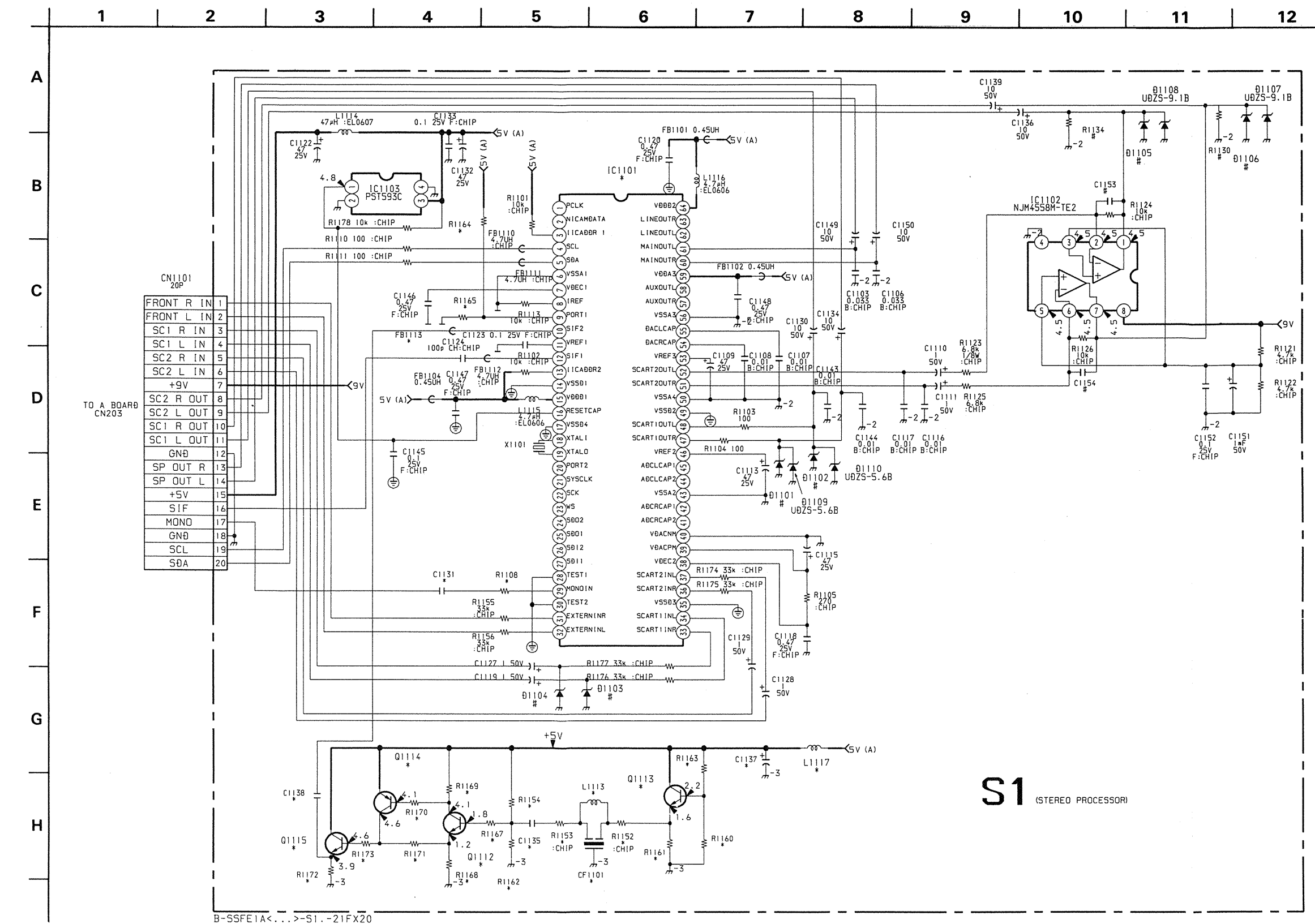


A BOARD

IC		DIODE			
IC001	B - 11	Q532	E - 2	D411	C - 2
IC002	G - 12	Q533	F - 1	D414	C - 1
IC003	C - 9	Q535	D - 1	D415	D - 2
IC004	C - 9	Q571	F - 5	D416	D - 2
IC101	A - 4	Q574	B - 8	D418	C - 1
IC201	C - 7	Q575	E - 6	D419	B - 2
IC301	C - 5	Q601	D - 10	D420	B - 2
IC401	A - 11			D421	D - 2
IC501	I - 4			D422	C - 1
IC531	D - 5			D423	C - 1
IC603	G - 5			D424	B - 12
IC604	D - 6			D425	B - 12
IC605	D - 6			D426	B - 11
IC606	I - 7			D427	B - 2
IC607	B - 11			D428	B - 8
IC608	D - 12			D429	B - 8
IC609	E - 11			D430	B - 3
TRANSISTOR					
Q001	B - 9	D011	E - 12	D501	I - 4
Q010	C - 10	D015	C - 9	D502	H - 4
Q011	B - 8	D017	C - 9	D512	H - 3
Q012	B - 11	D018	B - 8	D513	I - 3
Q013	A - 9	D019	A - 8	D514	H - 3
Q016	B - 8	D102	A - 5	D534	D - 3
Q017	A - 9	D103	B - 4	D535	F - 4
Q018	A - 9	D106	A - 5	D536	F - 2
Q019	A - 9	D023	C - 9	D538	F - 4
Q020	A - 8	D098	A - 9	D539	F - 2
Q021	D - 12	D099	A - 10	D541	D - 5
Q022	D - 11	D101	B - 2	D571	F - 5
Q101	B - 5	D104	A - 3	D601	F - 9
Q102	A - 5	D200	D - 8	D602	I - 6
Q104	A - 6	D201	D - 7	D603	H - 6
Q107	A - 3	D202	D - 7	D605	G - 6
Q108	B - 6	D204	D - 7	D608	H - 8
Q109	B - 3	D205	D - 8	D610	F - 7
Q110	B - 3	D206	D - 7	D613	E - 9
Q111	A - 10	D306	C - 6	D619	I - 8
Q112	A - 10	D307	C - 6	D621	F - 10
Q160	B - 5	D320	C - 4	D626	F - 10
Q201	D - 7	D401	C - 1	D627	F - 10
Q202	D - 7	D402	D - 2	D629	E - 11
Q328	C - 7	D403	D - 2	D631	F - 11
Q329	B - 7	D404	D - 2	D632	E - 10
Q405	B - 2	D405	C - 1	D633	E - 9
Q417	B - 2	D406	C - 2	D634	D - 10
Q418	B - 2	D407	C - 2	D654	F - 6
Q501	I - 5	D408	B - 2		
		D409	C - 2		
		D410	D - 2		

WAVEFORMS A BOARD

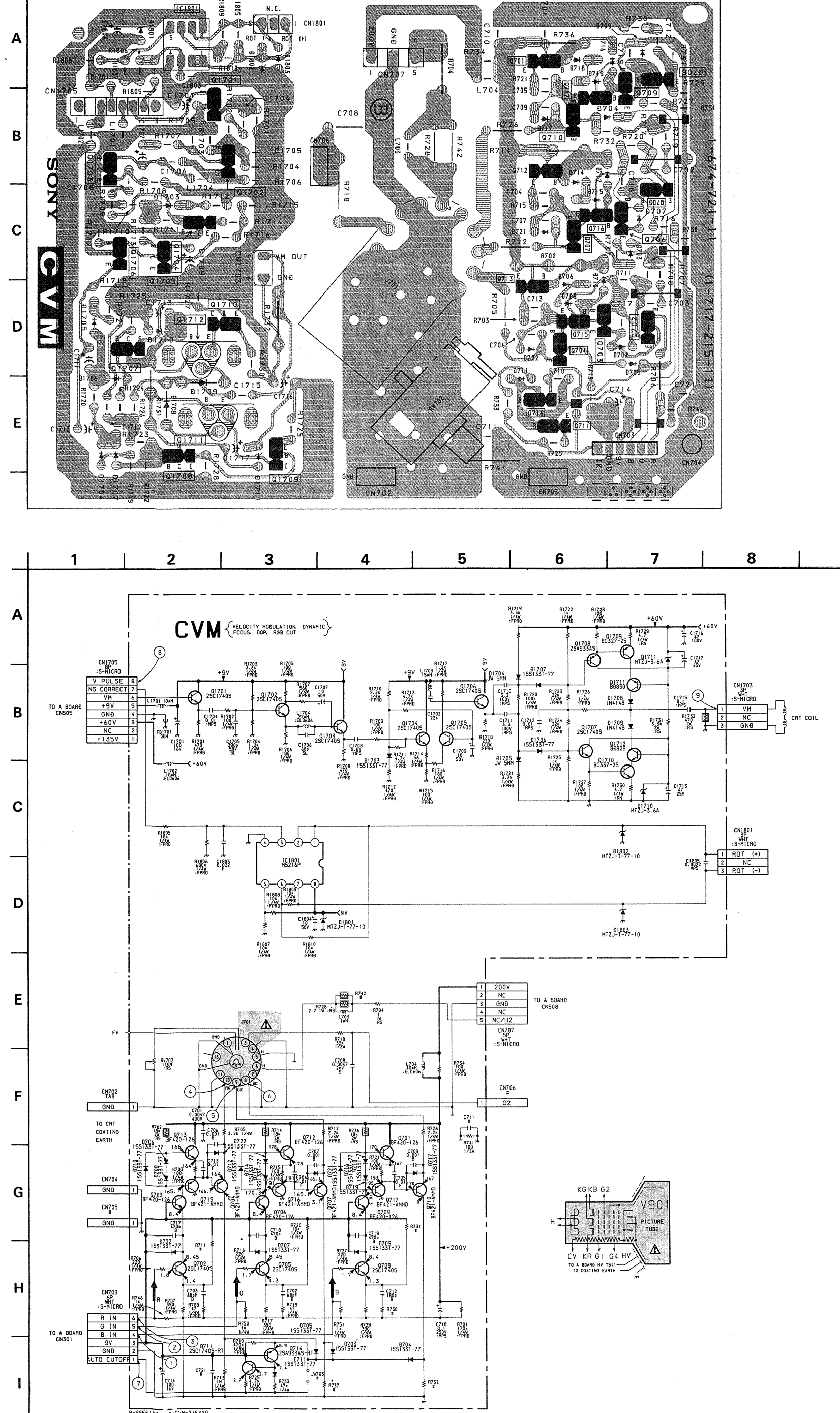
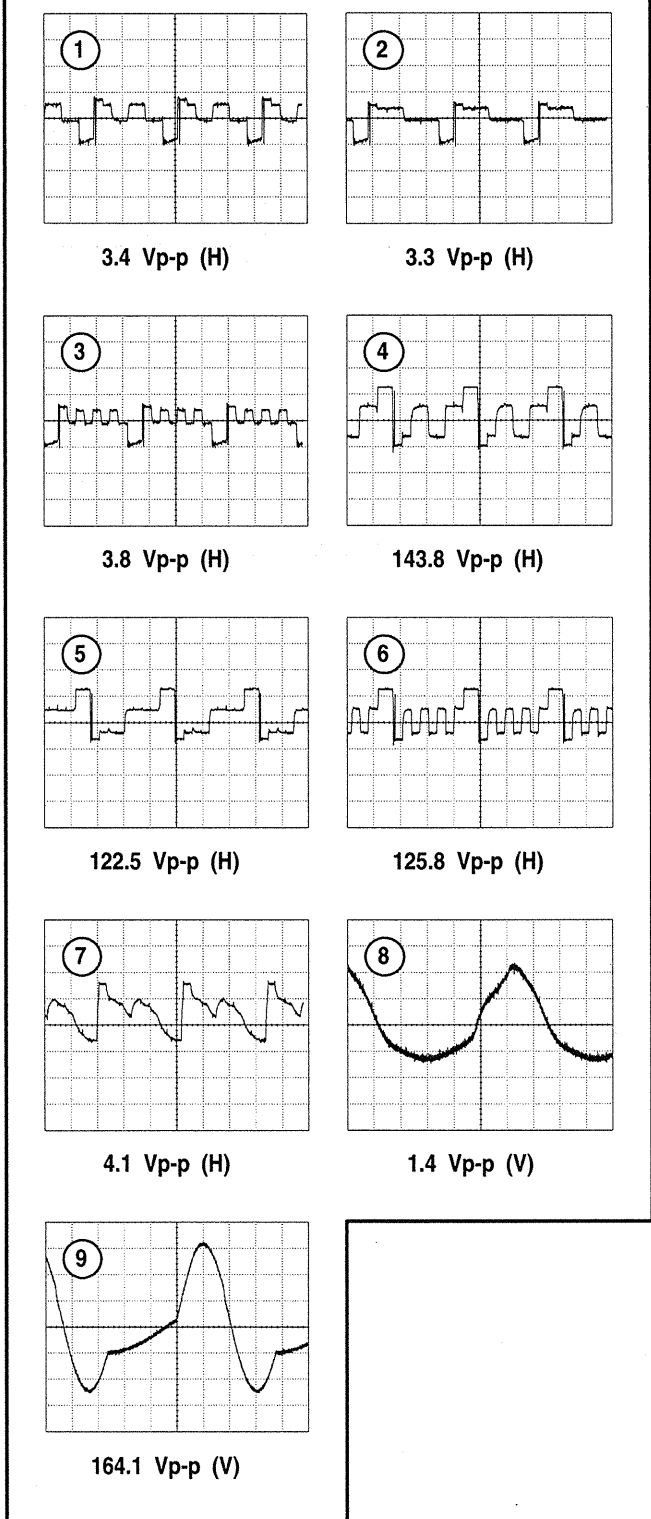




S1 BOARD *MARK

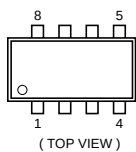
Ref	21FX20A	21FX20B	21FX20D	21FX20E	21FX20K	21FX20R
C1131	-	0.47MF	-	-	-	-
C1135	-	100PF	-	-	-	-
C1137	-	47MF	-	-	-	-
C1138	-	100PF	-	-	-	-
CF1101	-	TRAP CERAMIC 6.5MHZ	-	-	-	-
FB1113	-	4.7UH	-	-	-	-
IC1101	TDA9870A	TDA9875A	TDA9870A	TDA9875A	TDA9875A	TDA9870A
L1113	-	5.6UH	-	-	-	-
L1117	-	47UH	-	-	-	-
Q1112	-	2SC1623-LSL6	-	-	-	-
Q1113	-	2SC1623-LSL6	-	-	-	-
Q1114	-	2SA116G	-	-	-	-
Q1115	-	2SC1623-LSL6	-	-	-	-
R1108	-	15K	-	-	-	-
R1152	-	270	-	-	-	-
R1153	-	100	-	-	-	-
R1154	-	5.6K	-	-	-	-
R1160	-	22K	-	-	-	-
R1161	-	470	-	-	-	-
R1162	-	3.3K	-	-	-	-
R1163	-	22K	-	-	-	-
R1164	-	10K	-	10K	10K	-
R1165	SHORT 0	-	SHORT 0	-	-	SHORT 0
R1167	-	100	-	-	-	-
R1168	-	220	-	-	-	-
R1169	-	1K	-	-	-	-
R1170	-	10	-	-	-	-
R1171	-	680	-	-	-	-
R1172	-	470	-	-	-	-
R1173	-	1K	-	-	-	-

WAVEFORMS CVM BOARD

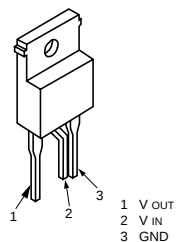


5-4. SEMICONDUCTORS (1)

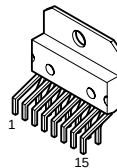
LM358DR-EZ
NJM2233BL
NJM4558M-TE2
NJM2903D



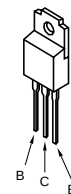
SE-135N
SE135N-LF12



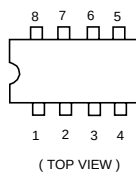
TDA7495



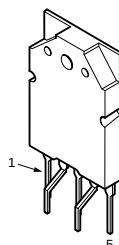
2SC4793



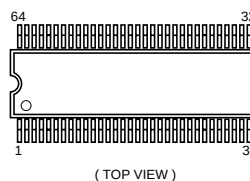
LM393PN
TDA2822M
TEA2124



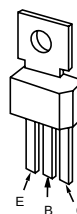
STR-F6653



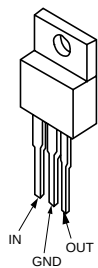
TDA9875
TDA9870



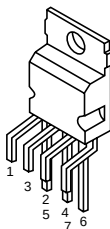
BF871-127



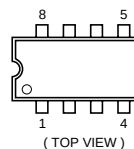
LM294OCT-5.0



STV9379

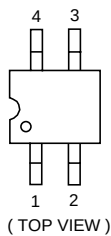


TOP209P

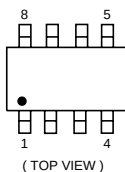


DTA144ESA
DTA144ESA-TP
DTC114EKA
DTC114EKA-T146
DTC143TKA-T146
DTC144EKA-T-146R
2SA1037K-T-146-R
R2SA1162-G
2SA1037K-T-146-QR
2SD601A-QTX
2SC1623-L5-L6
2SC2412K-QR
2SC2412K-T-146-R

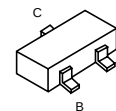
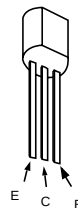
PST593C-MMP-4P



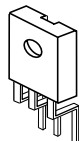
ST24W08FM6TR



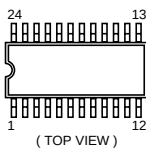
BF421-AMMO
2SA1091-O



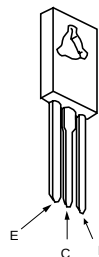
SBX1981-51



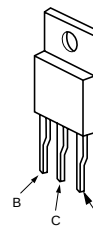
TDA9818-V1
TDA9817-V1



2SC688-LK

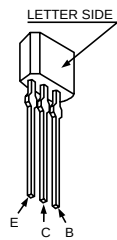


IRF614

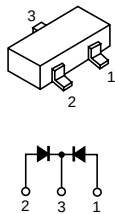


5-4. SEMICONDUCTORS (2)

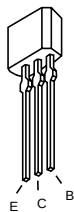
2SA933AS-QRT
2SAG33ASQT
2SA933AS-RT
2SC1740S-RT



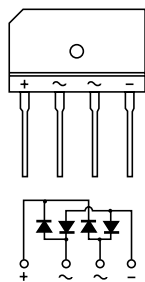
DAN202K
DAN202K-T146



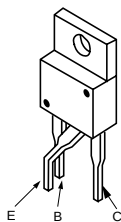
2SC2785-HFE



D4SB60L

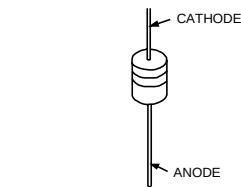
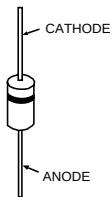


2SK2251-01-F19

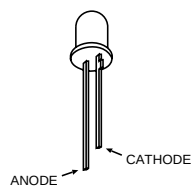


ERA81-004TP1	MTZJ-T-77-13B
ERA83-006	MTZJ-T-77-33A
MTZJ-3.6A	MTZJ-33C
MTZJ-T-77-2.2A	MTZJ-7.5B
HZS9.INBZ	RD3.9ES-B2
MTZJ-T-77-3.9B	RD5.6ESB2
MTZJ-T-77-5.6B	RD6.8ES-B2
MTZJ-T-77-5.6C	RD7.5ESB2
MTZJ-T-77-6.8A	RD9.1ES-B3
MTZJ-T-77-6.8C	RD10ESB2
MTZJ-T-77-7.5B	RD15ESB2
MTZJ-T-77-9.1B	1SS119-25
MTZJ-T-77-10	

AK04-V1	ERC06-15SL
AU-01Z-V1	FMN-G12S
BYD33G	GP08D
BYD33G-	RG1CLF-B1
AMMO	RGP10GPKG23
DINL20-TR	RGP15GPKG23
ERB44-06TP1	RU-AM
EGP20G	RU3YX-LF-C4
EG-1Z-V1	RU3YX-V1
EL1Z	RU-4AM-T3
ERD28-06S	1N148
ERD28-08S	1SS292T-77

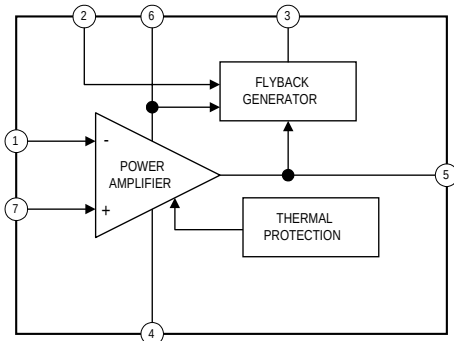


SLA-570KT3F

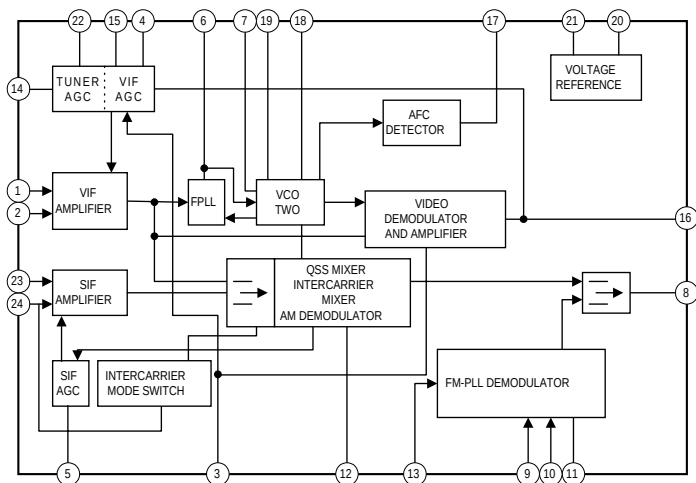


5-5. IC BLOCK DIAGRAMS

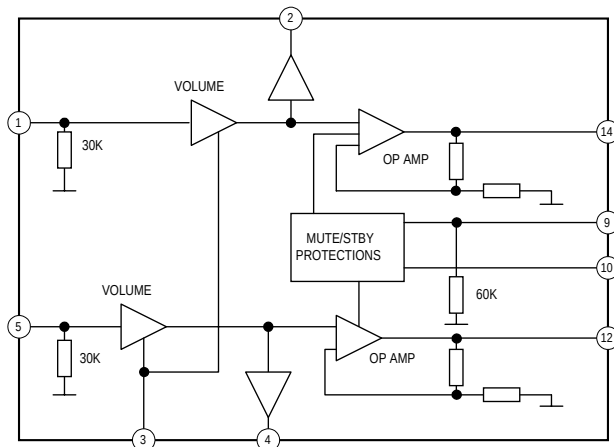
A BOARD IC501 STV 9379



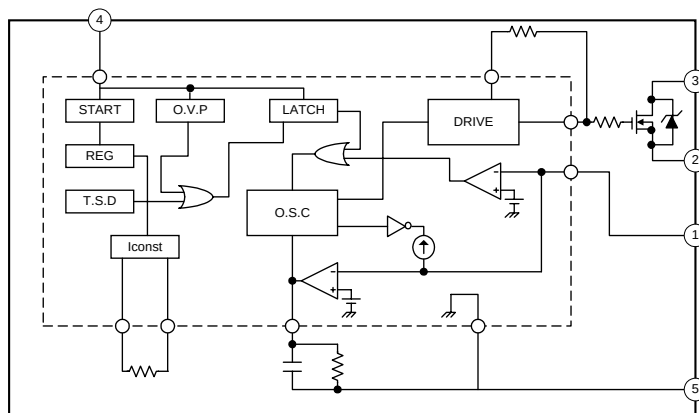
A BOARD IC101 TDA9817/V1



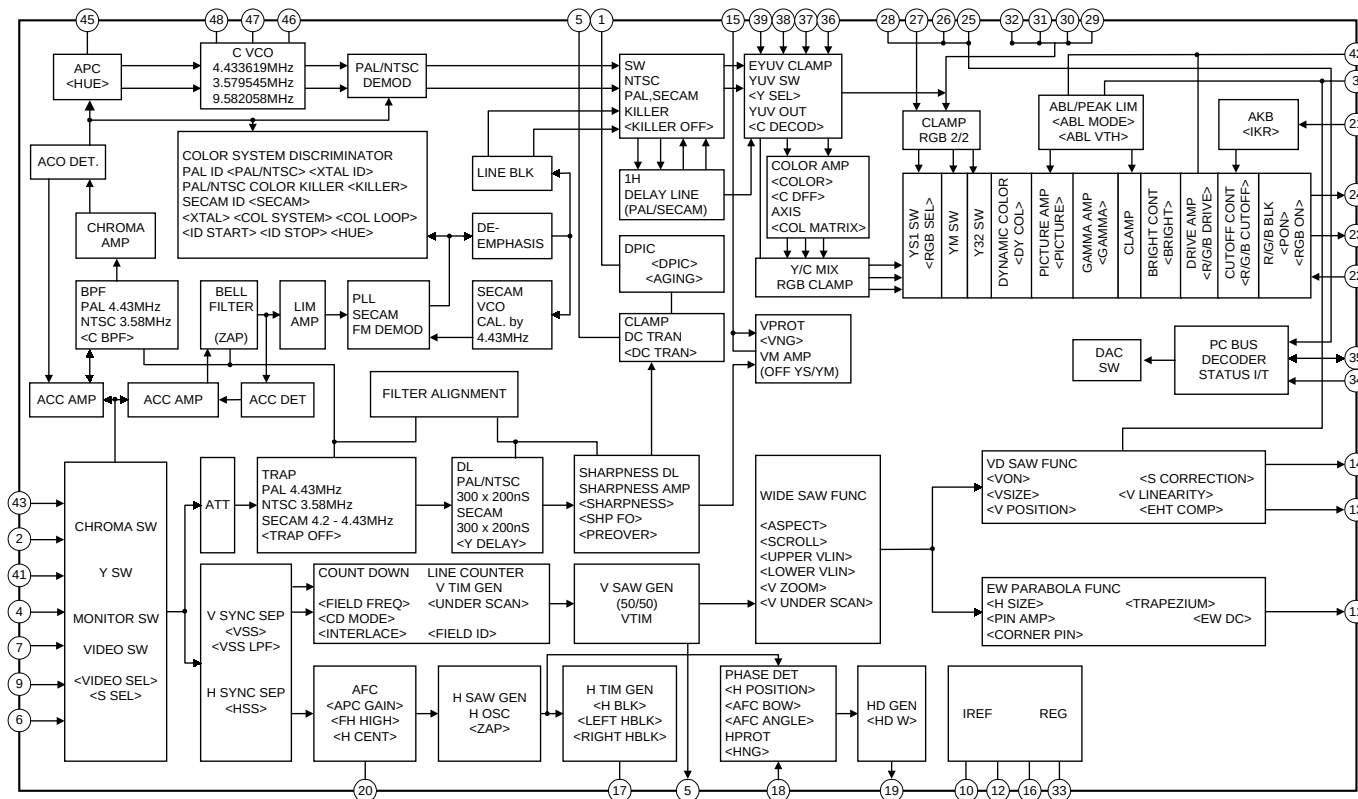
A BOARD IC201 TDA7495



A BOARD IC606 STR-F6653



A BOARD IC301 CXA2140S



SECTION 6 EXPLODED VIEWS

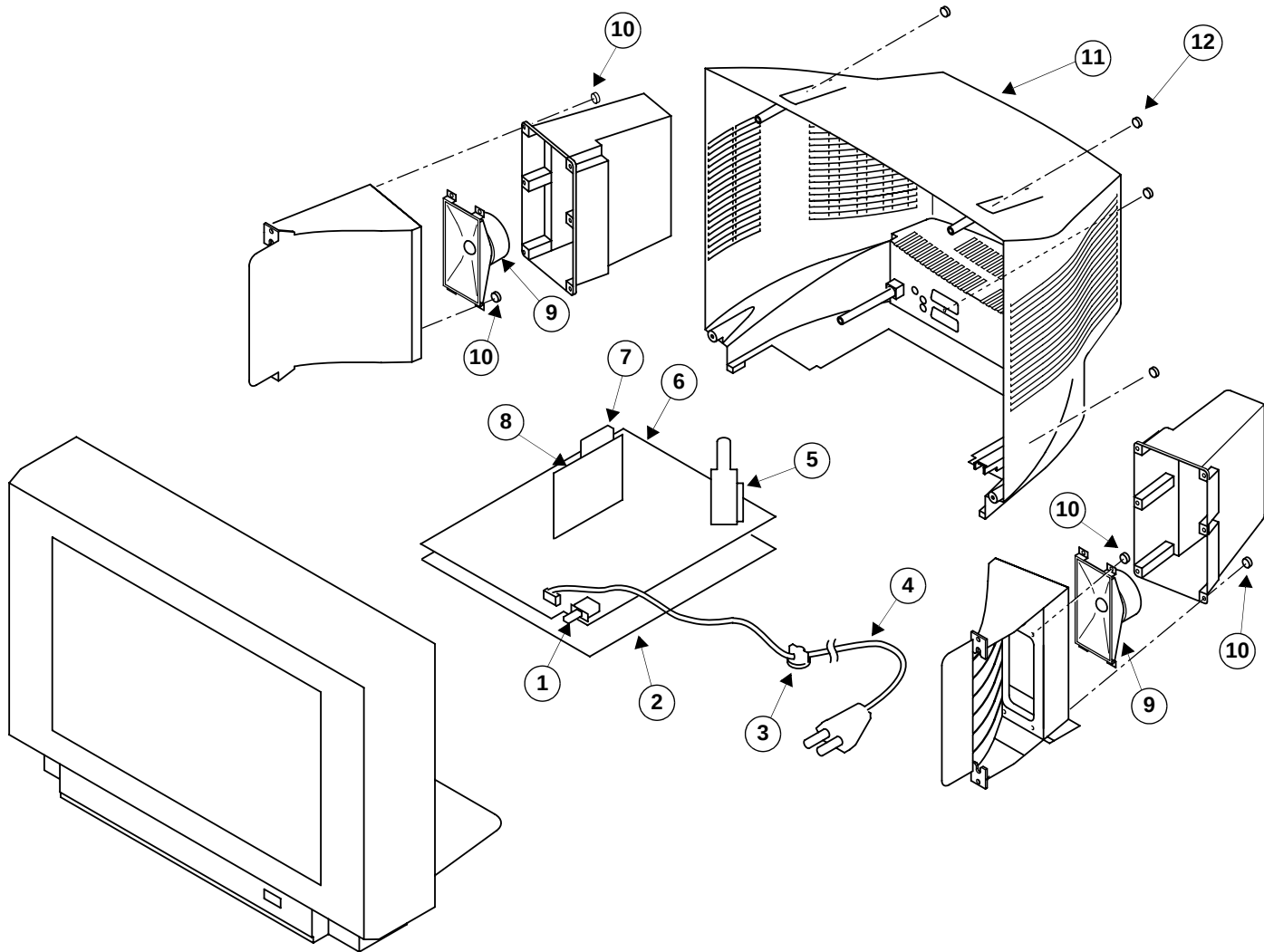
NOTE :

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remarks column.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note : Les composants identifiés par une trame et par une marque Δ sont d'une importance critique pour la sécurité. Ne les remplacer que par des pièces du numéro spécifié.

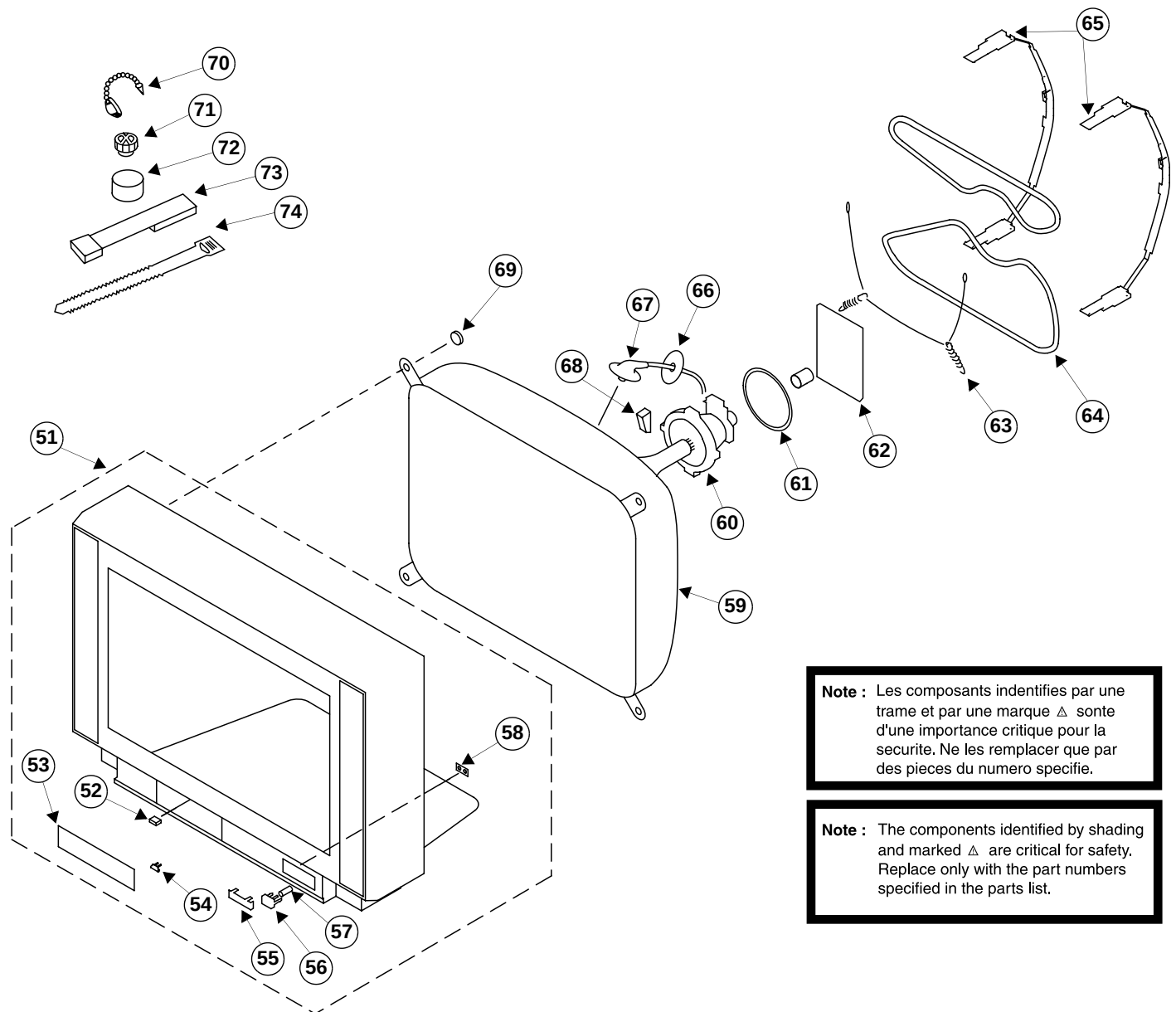
Note : The components identified by shading and marked Δ are critical for safety. Replace only with the part numbers specified in the parts list.

6-1. CHASSIS



REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
1	Δ 1-571-433-21	SWITCH, PUSH (AC POWER)		8	*A-1654-041-A	S1 BOARD, COMPLETE (KV-21FX20A/21FX20D/21FX20R)	
2	*4-204-143-01	BRACKET, MAIN			*A-1654-039-A	S1 BOARD, COMPLETE (KV-21FX20B)	
3	*4-202-531-01	AC CORD LOCK (SC)			*A-1654-040-A	S1 BOARD, COMPLETE (KV-21FX20E/21FX20K)	
4	Δ 1-765-286-11	CORD POWER		9	1-505-924-11	SPEAKER (15x6.5CM)	
5	Δ 1-453-314-21	TRANSFORMER ASSY, FLYBACK		10	7-685-663-71	SCREW +BVTP 4x16 TYPE2 IT3	
6	*A-1632-858-A	A BOARD, COMPLETE (KV-21FX20A)		11	4-204-711-01	COVER, REAR	
	*A-1632-855-A	A BOARD, COMPLETE (KV-21FX20B)		12	7-685-663-79	SCREW +BVTP 4x16 TYPE 2 IT-3	
	*A-1632-856-A	A BOARD, COMPLETE (KV-21FX20D)					
	*A-1632-857-A	A BOARD, COMPLETE (KV-21FX20E)					
	*A-1632-860-A	A BOARD, COMPLETE (KV-21FX20K)					
	*A-1632-859-A	A BOARD, COMPLETE (KV-21FX20R)					
7	8-598-432-10	TUNER (BTP-AC411) (KV-21FX20A/21FX20D/21FX20E/ KV-21FX20K/21FX20R)					
	1-693-418-11	TUNER (TELE9-001A) (KV-21FX20B)					

6-2. PICTURE TUBE



REF. NO.	PART.NO	DESCRIPTION	REMARK	REF. NO.	PART.NO	DESCRIPTION	REMARK
51	X-4200-491-1	BEZNET ASSY (KV-21FX20A/21FX20D/21FX20R)	52-58	60	Δ 8-451-494-21	DEFLECTION YOKE (Y21RSA-S)	
	X-4200-490-1	BEZNET ASSY (KV-21FX20B/21FX20E/21FX20K)	52-58	61	1-452-728-61	COIL, NA ROTATION (RT-154)	
52	4-047-464-01	CATCHER, PUSH		62	*A-1638-130-A	CVM BOARD, COMPLETE	
53	4-204-901-11	DOOR, (PAINTED) (KV-21FX20A/21FX20D/21FX20R)		63	4-369-318-21	SPRING, TENSION	
	4-204-901-01	DOOR, (PAINTED) (KV-21FX20B/21FX20E/21FX20K)		64	Δ 1-419-187-11	COIL, DEGAUSSING	
54	3-703-035-11	SHAFT LID		65	4-204-900-01	BAND, DGC	
55	4-204-902-01	WINDOW, ORNAMENTAL (PRINTED)		66	*4-203-022-01	HOLDER, HV	
56	4-204-903-01	BUTTON, POWER (PAINTED)		67	Δ 1-251-317-31	CAP ASSY, HIGH VOLTAGE	
57	4-204-426-01	SPRING		68	3-704-495-01	SPACER, DY	
58	4-204-706-01	GUIDE LIGHT		69	4-365-808-01	SCREW (5), TAPPING	
59	Δ 8-738-809-05	PICTURE TUBE (A51LPT70X) SD-313		70	4-308-870-00	CLIP, LEAD WIRE	
				71	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM $\emptyset$	
				72	1-452-032-00	MAGNET, DISK; 10MM $\emptyset$	
				73	X-4387-214-1	PERMALLOY ASSY, CORRECTION	
				74	3-701-007-00	BAND, BINDING	

SECTION 7 ELECTRICAL PARTS LIST

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Note : Refer to the designated variant parts list when seeking a part indicated by an asterisk (*)

Parts indicated (#) on the Schematic Diagram are not used in this model and therefore do not appear in the Parts List.

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
*A-1632-858-A	A Board, Complete	(KV-21FX20A)		C118	1-163-038-91	CERAMIC CHIP 0.1MF	25V
*A-1632-855-A	A Board, Complete	(KV-21FX20B)		C120	1-163-031-11	CERAMIC CHIP 0.01MF	50V
*A-1632-856-A	A Board, Complete	(KV-21FX20D)		C122	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
*A-1632-857-A	A Board, Complete	(KV-21FX20E)		C129	1-104-664-11	ELECT 47MF	20% 16V
*A-1632-860-A	A Board, Complete	(KV-21FX20K)		C130	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
*A-1632-859-A	A Board, Complete	(KV-21FX20R)					
A Board Common Parts				C134	1-128-551-11	ELECT 22MF	20% 25V
4-382-854-11	SCREW (M3X10) , P, SW (+)			C135	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
< CAPACITOR >				C138	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C001	1-104-665-11	ELECT 100MF	20% 25V	C139	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C002	1-115-339-11	CERAMIC CHIP 0.1MF	10% 50V	C143	1-104-664-11	ELECT 47MF	20% 25V
C005	1-163-105-00	CERAMIC CHIP 33PF	5% 50V				
C006	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	C146	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C009	1-128-551-11	ELECT 22MF	20% 25V	C147	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C010	1-126-960-11	ELECT 1MF	20% 50V	C149	1-126-959-11	ELECT 0.47MF	20% 50V
C011	1-126-965-11	ELECT 22MF	20% 50V	C150	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C012	1-126-963-11	ELECT 4.7MF	20% 50V	C151	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C013	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V				
C014	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C152	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C016	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C160	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C017	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C201	1-104-666-11	ELECT 220MF	20% 25V
C018	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C202	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C022	1-126-925-11	ELECT 470MF	20% 10V	C203	1-126-942-61	ELECT 1000MF	20% 25V
C023	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V				
C024	1-104-665-11	ELECT 100MF	20% 10V	C204	1-126-942-61	ELECT 1000MF	20% 25V
C025	1-104-664-11	ELECT 47MF	20% 10V	C205	1-163-033-91	CERAMIC CHIP 0.022MF	50V
C027	1-104-665-11	ELECT 100MF	20% 10V	C206	1-126-960-11	ELECT 1MF	20% 50V
C033	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C207	1-126-972-11	ELECT 1000MF	20% 50V
C035	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C209	1-163-033-91	CERAMIC CHIP 0.022MF	50V
C038	1-126-964-11	ELECT 10MF	20% 50V				
C040	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	C210	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C041	1-163-009-91	CERAMIC CHIP 1000PF	10% 50V	C211	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C050	1-126-925-11	ELECT 470MF	20% 10V	C212	1-115-339-11	CERAMIC CHIP 0.1MF	10% 50V
C051	1-115-339-11	CERAMIC CHIP 0.1MF	10% 50V	C213	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C102	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	C214	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C103	1-104-665-11	ELECT 100MF	20% 25V				
C105	1-126-965-11	ELECT 22MF	20% 50V	C215	1-115-339-91	CERAMIC CHIP 0.1MF	10% 50V
C107	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	C216	1-115-339-91	CERAMIC CHIP 0.1MF	10% 50V
C108	1-163-465-11	CERAMIC CHIP 9PF	0.25PF 50V	C217	1-164-005-91	CERAMIC CHIP 470000PF	10% 25V
C109	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C218	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C110	1-163-038-91	CERAMIC CHIP 0.1MF	25V	C219	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C112	1-163-031-11	CERAMIC CHIP 0.01MF	50V				
C115	1-164-489-11	CERAMIC CHIP 0.22MF	10% 16V	C240	1-163-031-11	CERAMIC CHIP 0.01MF	50V
C116	1-126-961-11	ELECT 2.2MF	20% 50V	C301	1-164-346-11	CERAMIC CHIP 1MF	16V
C117	1-126-961-11	ELECT 2.2MF	20% 50V	C302	1-104-664-11	ELECT 47MF	20% 16V
				C303	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V
				C304	1-126-964-11	ELECT 10MF	20% 50V
				C306	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
				C308	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V
				C309	1-164-506-11	CERAMIC CHIP 4.7MF	16V
				C312	1-163-233-11	CERAMIC CHIP 18PF	5% 50V
				C313	1-163-233-11	CERAMIC CHIP 18PF	5% 50V
				C314	1-164-222-11	CERAMIC CHIP 0.22MF	25V
				C316	1-163-259-91	CERAMIC CHIP 220PF	5% 50V

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
C317	1-164-222-11	CERAMIC CHIP 0.22MF	25V	C518	1-106-375-12	MYLAR 0.022MF	10% 250V
C319	1-126-964-11	ELECT 10MF	20% 50V	C519	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V
C321	1-126-963-11	ELECT 4.7MF	20% 50V	C520	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C322	1-164-004-11	CERAMIC CHIP 0.1MF	10% 25V	C522	1-130-495-00	FILM 0.1MF	5% 50V
C328	1-104-664-11	ELECT 47MF	20% 25V	C531	1-126-964-11	ELECT 10MF	20% 50V
C329	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C532	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V
C330	1-163-038-91	CERAMIC CHIP 0.1MF	25V	C535	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C331	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C536	1-119-967-11	FILM 0.43MF	5% 250V
C332	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C537	1-137-417-11	MYLAR 0.0047MF	10% 200V
C333	1-126-960-11	ELECT 1MF	20% 50V	C538	1-165-319-11	CERAMIC CHIP 0.1MF	50V
C334	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C539	1-109-954-11	ELECT 0.47MF	20% 160V
C335	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C540	1-136-206-11	FILM 0.033MF	10% 400V
C336	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C541	1-106-383-00	MYLAR 0.047MF	10% 200V
C337	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C542	1-162-135-11	CERAMIC 560PF	10% 2KV
C338	1-126-967-11	ELECT 47MF	20% 50V	C543	1-162-134-11	CERAMIC 470PF	10% 2KV
C339	1-164-346-11	CERAMIC CHIP 1MF	16V	C545	1-126-960-11	ELECT 1MF	20% 50V
C350	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C546	1-129-720-00	FILM 0.033MF	5% 400V
C351	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C547	1-115-522-11	FILM 1MF	5% 250V
C401	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C548	1-162-134-11	CERAMIC 470PF	10% 2KV
C402	1-126-964-11	ELECT 10MF	20% 50V	C550	1-107-638-11	ELECT 33MF	20% 160V
C403	1-126-964-11	ELECT 10MF	20% 50V	C552	1-102-212-00	CERAMIC 820PF	10% 500V
C405	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C553	1-106-375-12	MYLAR 0.022MF	5% 100V
C408	1-126-964-11	ELECT 10MF	20% 50V	C555	1-117-643-31	FILM 1900PF	3% 1.2KV
C409	1-126-960-11	ELECT 1MF	20% 50V	C571	1-123-024-21	ELECT 33MF	160V
C411	1-126-964-11	ELECT 10MF	20% 50V	C572	1-104-665-11	ELECT 100MF	20% 10V
C413	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C580	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V
C417	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C582	1-163-009-91	CERAMIC CHIP 1000PF	10% 50V
C426	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C584	1-126-963-11	ELECT 4.7MF	20% 50V
C427	1-126-960-11	ELECT 1MF	20% 50V	C601 Δ	1-107-563-11	FILM 0.1MF	20% 300V
C428	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C602 Δ	1-107-563-11	FILM 0.1MF	20% 300V
C429	1-126-960-11	ELECT 1MF	20% 50V	C603 Δ	1-119-888-51	CERAMIC 2200PF	20% 250V
C430	1-104-664-11	ELECT 47MF	20% 25V	C604 Δ	1-119-888-51	CERAMIC 2200PF	20% 250V
C432	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V	C605	1-104-665-11	ELECT 100MF	20% 10V
C433	1-163-275-11	CERAMIC CHIP 0.001MF	5% 50V	C607	1-161-754-00	CERAMIC 0.001MF	10% 2KV
C434	1-126-935-11	ELECT 470MF	20% 16V	C609	1-128-550-11	ELECT 2200MF	20% 50V
C501	1-126-968-11	ELECT 100MF	20% 50V	C610	1-104-665-11	ELECT 100MF	20% 25V
C502	1-163-038-91	CERAMIC CHIP 0.1MF	25V	C611	1-165-127-11	CERAMIC 470PF	10% 500V
C503	1-126-968-11	ELECT 100MF	20% 50V	C612 Δ	1-161-964-51	CERAMIC 0.0047MF	250V
C504	1-106-220-00	MYLAR 0.1MF	10% 100V	C613 Δ	1-161-964-51	CERAMIC 0.0047MF	250V
C505	1-137-194-81	FILM 0.47MF	5% 50V	C614 Δ	1-161-964-51	CERAMIC 0.0047MF	250V
C506	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C615	1-130-202-00	FILM 0.022MF	10% 400V
C507	1-126-933-11	ELECT 100MF	20% 16V	C618	1-107-890-11	ELECT 2200MF	20% 25V
C508	1-126-960-11	ELECT 1MF	20% 50V	C621	1-163-005-11	CERAMIC CHIP 470PF	10% 50V
C509	1-107-364-11	MYLAR 0.01MF	10% 400V	C622 Δ	1-162-599-12	CERAMIC 0.0047MF	250V
C513	1-107-662-11	ELECT 22MF	20% 250V	C623	1-107-364-11	MYLAR 0.01MF	10% 400V
C515	1-104-666-11	ELECT 220MF	20% 25V	C624	1-104-665-11	ELECT 100MF	20% 10V
C517	1-104-666-11	ELECT 220MF	20% 25V	C625	1-104-665-11	ELECT 100MF	20% 25V

The components identified by shading and marked Δ are critical for safety
Replace only with the part number specified.

A

REF. NO.	PART.NO	DESCRIPTION	REMARK	REF. NO.	PART.NO	DESCRIPTION	REMARK
C628	1-124-347-00	ELECT	100MF 20% 160V	D019	8-719-914-43	DIODE DAN202K	
C630	1-165-127-11	CERAMIC	470PF 10% 500V	D023	8-719-109-89	DIODE RD5.6ESB2	
C633	1-104-332-11	CERAMIC	470PF 10% 2KV	D098	8-719-982-96	DIODE MTZJ-T-77-2.2A	
C638	1-107-679-41	ELECT	10MF 20% 450V	D099	8-719-982-96	DIODE MTZJ-T-77-2.2A	
C639	1-104-665-11	ELECT	100MF 20% 25V	D101	8-719-982-24	DIODE MTZJ-33A	
C640	1-104-664-11	ELECT	47MF 20% 10V	D103	8-719-109-89	DIODE RD5.6ESB2	
C641	1-111-034-11	ELECT	220MF 20% 16V	D106	8-719-982-96	DIODE MTZJ-T-77-2.2A	
C642	1-104-665-11	ELECT	100MF 20% 10V	D200	8-719-109-89	DIODE RD5.6ESB2	
C654	1-107-932-11	ELECT	47MF 20% 100V	D201	8-719-929-15	DIODE HZS9.1NB2	
< FILTER >				D202	8-719-914-43	DIODE DAN202K	
CF101	1-404-134-00	TRAP, CERAMIC (5.5MHZ)		D204	8-719-109-89	DIODE RD5.6ESB2	
SWF102	1-767-873-11	FILTER, SURFACE WAVE		D205	8-719-109-89	DIODE RD5.6ESB2	
< CONNECTOR >				D206	8-719-109-89	DIODE RD5.6ESB2	
CN001	*1-564-508-11	PLUG, CONNECTOR 5P		D207	8-719-914-47	DIODE DAN202K	
CN101	1-695-915-11	TAB (CONTACT)		D208	8-719-921-20	DIODE 1SS119-25TD	
CN201	*1-564-507-11	PLUG, CONNECTOR 4P		D209	8-719-921-20	DIODE 1SS119-25TD	
CN203	*1-766-957-11	CONNECTOR, BOARD TO BOARD 20P		D210	8-719-921-20	DIODE 1SS119-25TD	
CN301	*1-564-509-11	PLUG, CONNECTOR 6P		D306	8-719-109-89	DIODE RD5.6ESB2	
CN501	*1-580-798-11	CONNECTOR PIN (DY)		D307	8-719-109-89	DIODE RD5.6ESB2	
CN505	*1-564-511-11	PLUG, CONNECTOR 8P		D320	8-719-929-15	DIODE HZS9.1NB2	
CN506	1-695-915-11	TAB (CONTACT)		D401	8-719-929-15	DIODE HZS9.1NB2	
CN508	*1-564-508-11	PLUG, CONNECTOR 5P		D402	8-719-421-59	DIODE MA3130WA-TX	
CN601	£ *1-580-843-11	PIN, CONNECTOR (POWER)		D403	8-719-421-59	DIODE MA3130WA-TX	
CN602	£ 1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P		D404	8-719-421-59	DIODE MA3130WA-TX	
CN603	£ *1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P		D405	8-719-109-89	DIODE RD5.6ESB2	
CN608	1-695-915-11	TAB (CONTACT)		D406	8-719-109-97	DIODE RD6.8ESB2	
< DIODE >				D407	8-719-109-97	DIODE RD6.8ESB2	
D001	8-719-109-89	DIODE RD5.6ESB2		D408	8-719-929-15	DIODE HZS9.1NB2	
D002	8-719-109-89	DIODE RD5.6ESB2		D409	8-719-421-59	DIODE MA3130WA-TX	
D003	8-719-030-11	DIODE SLA-570KT3F		D410	8-719-421-59	DIODE MA3130WA-TX	
	4-203-258-01	HOLDER, LED (D003)		D411	8-719-421-59	DIODE MA3130WA-TX	
D004	8-719-109-89	DIODE RD5.6ESB2		D414	8-719-921-88	DIODE MTZJ-13B	
D005	8-719-109-89	DIODE RD5.6ESB2		D416	8-719-421-59	DIODE MA3130WA-TX	
D006	8-719-109-89	DIODE RD5.6ESB2		D418	8-719-929-15	DIODE HZS9.1NB2	
D007	8-719-109-89	DIODE RD5.6ESB2		D419	8-719-929-15	DIODE HZS9.1NB2	
D008	8-719-991-33	DIODE 1SS133T-77		D420	8-719-109-97	DIODE RD6.8ESB2	
D009	8-719-109-89	DIODE RD5.6ESB2		D421	8-719-421-59	DIODE MA3130WA-TX	
D010	8-719-109-89	DIODE RD5.6ESB2		D422	8-719-921-88	DIODE MTZJ-13B	
D011	8-719-109-89	DIODE RD5.6ESB2		D423	8-719-109-97	DIODE RD6.8ESB2	
D014	8-719-109-89	DIODE RD5.6ESB2		D424	8-719-929-15	DIODE HZS9.1NB2	
D015	8-719-914-43	DIODE DAN202K		D425	8-719-929-15	DIODE HZS9.1NB2	
D017	8-719-109-89	DIODE RD5.6ESB2		D426	8-719-929-15	DIODE HZS9.1NB2	
D018	8-719-991-33	DIODE 1SS133T-77		D427	8-719-109-97	DIODE RD6.8ESB2	
				D428	8-719-109-89	DIODE RD5.6ESB2	
				D429	8-719-109-89	DIODE RD5.6ESB2	
				D501	8-719-908-03	DIODE GP08D	
				D502	8-719-924-13	DIODE MTZJ-T-77-22B	

A

The components identified by shading and marked **Δ** are critical for safety.
Replace only with the part number specified.

F601 △ 1-532-504-41 FUSE 4A/250V
 △ *1-533-725-11 HOLDER, FUSE (F601)

The components identified by shading and marked Δ are critical for safety
Replace only with the part number specified.

A

REF. NO.	PART.NO	DESCRIPTION	REMARK	REF. NO.	PART.NO	DESCRIPTION	REMARK
L325	1-412-002-31	INDUCTOR CHIP 4.7UH		Q328	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
L401	1-414-187-11	INDUCTOR 47UH		Q329	8-729-026-50	TRANSISTOR 2SA1037AK	
L402	1-408-611-31	INDUCTOR 47UH		Q405	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
L403	1-535-303-00	LEAD, JUMPER (5.0MM)		Q417	8-729-026-50	TRANSISTOR 2SA1037AK	
L404	1-535-303-00	LEAD, JUMPER (5.0MM)		Q418	8-729-422-33	TRANSISTOR 2SD601A-Q-TX	
L405	1-412-002-31	INDUCTOR CHIP 4.7UH		Q501	8-729-422-33	TRANSISTOR 2SD601A-Q-TX	
L406	1-412-002-31	INDUCTOR CHIP 4.7UH		Q532	8-729-038-83	TRANSISTOR 2SK2251-01-F19	
L407	1-412-002-31	INDUCTOR CHIP 4.7UH		Q533	8-729-049-08	TRANSISTOR BU2515DX-127	
L408	1-412-002-31	INDUCTOR CHIP 4.7UH		Q535	8-729-119-80	TRANSISTOR 2SC2688-LK	
L427	1-535-303-00	LEAD, JUMPER (5.00MM)		Q571	8-729-105-08	TRANSISTOR 2SA1330-06	
L434	1-414-181-11	INDUCTOR 4.7UH		Q574	8-729-422-33	TRANSISTOR 2SD601A-Q-TX	
L435	1-414-181-11	INDUCTOR 4.7UH		Q575	1-801-806-11	TRANSISTOR DTC144EKA-T146	
L447	1-410-993-42	INDUCTOR CHIP 1UH		Q576	8-729-031-00	TRANSISTOR 2PD601AR-115	
L501	1-414-187-11	INDUCTOR 47UH		Q601	8-729-026-50	TRANSISTOR 2SA1037AK	
L502	1-412-531-31	INDUCTOR 33UH		< RESISTOR >			
L503	1-412-521-31	INDUCTOR 4.7UH		JR007	1-216-295-91	SHORT 0	
L504	1-535-303-00	LEAD, JUMPER (5.0MM)		JR023	1-216-296-91	SHORT 0	
L532	1-412-553-11	INDUCTOR 3.3MMH		JR124	1-216-295-91	SHORT 0	
L533	1-406-989-21	INDUCTOR 10MMH		JR125	1-216-295-91	SHORT 0	
L535	1-459-111-00	INDUCTOR 10MMH		JR132	1-216-295-91	SHORT 0	
L537	1-419-141-11	COIL, HORIZONTAL LINEARITY		JR516	1-216-296-91	SHORT 0	
L571	1-412-533-21	INDUCTOR 47UH		JR517	1-216-296-91	SHORT 0	
L602	1-408-603-31	INDUCTOR 10UH		R001	1-216-025-91	RES,CHIP 100 5% 1/10W	
< PHOTO COUPLER >				R002	1-216-025-91	RES,CHIP 100 5% 1/10W	
PH601 Δ	8-749-016-21	IC TCET1103G		R003	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
< TRANSISTOR >				R004	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
Q001	1-801-806-11	TRANSISTOR DTC144EKA-T146		R005	1-216-214-00	RES,CHIP 4.7K 5% 1/8W	
Q010	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R008	1-216-025-91	RES,CHIP 100 5% 1/10W	
Q011	1-801-806-11	TRANSISTOR DTC144EKA-T146		R009	1-216-025-91	RES,CHIP 100 5% 1/10W	
Q012	8-729-422-33	TRANSISTOR 2SD601A-Q-TX		R010	1-216-025-91	RES,CHIP 100 5% 1/10W	
Q013	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R011	1-216-025-91	RES,CHIP 100 5% 1/10W	
Q016	8-729-026-50	TRANSISTOR 2SA1037AK		R012	1-247-807-31	CARBON 100 5% 1/4W	
Q017	8-729-026-50	TRANSISTOR 2SA1037AK		R013	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
Q018	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R014	1-216-295-91	SHORT 0	
Q019	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R015	1-216-045-00	RES,CHIP 680 5% 1/10W	
Q020	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R016	1-216-055-00	RES,CHIP 1.8K 5% 1/10W	
Q021	8-729-026-50	TRANSISTOR 2SA1037AK		R017	1-249-429-11	CARBON 10K 5% 1/4W	
Q022	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R018	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
Q101	8-729-026-50	TRANSISTOR 2SA1037AK		R019	1-216-295-91	SHORT 0	
Q111	1-801-806-11	TRANSISTOR DTC144EKA-T146		R020	1-216-049-91	RES,CHIP 1K 5% 1/10W	
Q112	8-729-026-50	TRANSISTOR 2SA1037AK		R021	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
Q201	8-729-120-28	TRANSISTOR 2SC1623-L5L6		R022	1-216-049-91	RES,CHIP 1K 5% 1/10W	
Q202	8-729-422-33	TRANSISTOR 2SD601A-Q-TX		R023	1-216-049-91	RES,CHIP 1K 5% 1/10W	
Q203	8-729-920-75	TRANSISTOR 2SC2412K		R024	1-216-073-00	RES,CHIP 10K 5% 1/10W	
Q204	8-729-920-75	TRANSISTOR 2SC2412K		R025	1-216-073-00	RES,CHIP 10K 5% 1/10W	
				R026	1-216-073-00	RES,CHIP 10K 5% 1/10W	

REF.NO.	PART.NO	DESCRIPTION	REMARK			REF.NO.	PART.NO	DESCRIPTION	REMARK		
R027	1-216-083-00	RES,CHIP	27K	5%	1/10W	R094	1-216-025-91	RES,CHIP	100	5%	1/10W
R028	1-216-049-91	RES,CHIP	1K	5%	1/10W	R095	1-216-025-91	RES,CHIP	100	5%	1/10W
R029	1-216-073-00	RES,CHIP	10K	5%	1/10W	R096	1-247-807-31	CARBON	100	5%	1/4W
R030	1-216-073-00	RES,CHIP	10K	5%	1/10W	R097	1-247-807-31	CARBON	100	5%	1/4W
R031	1-216-073-00	RES,CHIP	10K	5%	1/10W	R098	1-216-097-91	RES,CHIP	100K	5%	1/10W
R032	1-216-089-91	RES,CHIP	47K	5%	1/10W	R099	1-216-246-00	RES,CHIP	100K	5%	1/8W
R033	1-216-093-91	RES,CHIP	68K	5%	1/10W	R101	1-216-049-91	RES,CHIP	1K	5%	1/10W
R034	1-216-049-91	RES,CHIP	1K	5%	1/10W	R103	1-216-041-00	RES,CHIP	470	5%	1/10W
R035	1-216-198-91	RES,CHIP	1K	5%	1/8W	R105	1-216-071-91	RES,CHIP	8.2K	5%	1/10W
R036	1-216-049-91	RES,CHIP	1K	5%	1/10W	R106	1-215-900-11	METAL OXIDE	22K	5%	2W F
R037	1-216-081-00	RES,CHIP	22K	5%	1/10W	R120	1-216-037-00	RES,CHIP	330	5%	1/10W
R038	1-249-429-11	CARBON	10K	5%	1/4W	R121	1-216-025-91	RES,CHIP	100	5%	1/10W
R039	1-216-065-91	RES,CHIP	4.7K	5%	1/10	R122	1-216-025-91	RES,CHIP	100	5%	1/10W
R040	1-216-025-91	RES,CHIP	100	5%	1/10W	R125	1-249-417-11	CARBON	1K	5%	1/4W
R046	1-216-081-00	RES,CHIP	22K	5%	1/10W	R126	1-216-081-00	RES,CHIP	22K	5%	1/10W
R047	1-216-063-91	RES,CHIP	3.9K	5%	1/10W	R130	1-216-085-00	RES,CHIP	33K	5%	1/10W
R048	1-216-073-00	RES,CHIP	10K	5%	1/10W	R134	1-216-075-00	RES,CHIP	12K	5%	1/10W
R049	1-216-049-91	RES,CHIP	1K	5%	1/10W	R143	1-247-809-91	CARBON	120	5%	1/4W
R050	1-216-049-91	RES,CHIP	1K	5%	1/10W	R144	1-216-222-00	RES,CHIP	10K	5%	1/8W
R051	1-216-174-00	RES,CHIP	100	5%	1/8W	R145	1-216-212-00	RES,CHIP	3.9K	5%	1/8W
R052	1-216-295-91	SHORT	0			R146	1-216-105-91	RES,CHIP	220K	5%	1/10W
R053	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	R151	1-216-049-91	RES,CHIP	1K	5%	1/10W
R054	1-216-097-91	RES,CHIP	100K	5%	1/10W	R153	1-216-180-00	RES,CHIP	180	5%	1/8W
R060	1-216-025-91	RES,CHIP	100	5%	1/10W	R154	1-216-238-91	RES,CHIP	47K	5%	1/8W
R061	1-216-025-91	RES,CHIP	100	5%	1/10W	R155	1-216-079-00	RES,CHIP	18K	5%	1/10W
R062	1-216-182-00	RES,CHIP	220	5%	1/8W	R201	1-260-091-11	CARBON	220	5%	1/2W
R063	1-216-089-91	RES,CHIP	47K	5%	1/10W	R202	1-216-113-00	RES,CHIP	470K	5%	1/10W
R064	1-216-089-91	RES,CHIP	47K	5%	1/10W	R203	1-216-081-00	RES,CHIP	22K	5%	1/10W
R065	1-216-025-91	RES,CHIP	100	5%	1/10W	R204	1-247-863-91	CARBON	22K	5%	1/4W
R066	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R205	1-260-091-11	CARBON	220	5%	1/2W
R067	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	R206	1-216-085-00	RES,CHIP	33K	5%	1/10W
R068	1-216-069-00	RES,CHIP	6.8K	5%	1/10W	R209	1-216-049-91	RES,CHIP	1K	5%	1/10W
R069	1-216-041-00	RES,CHIP	470	5%	1/10W	R211	1-215-873-00	METAL OXIDE	4.7K	5%	1W F
R071	1-216-200-11	RES,CHIP	1.2K	5%	1/8W	R213	1-216-093-91	RES,CHIP	68K	5%	1/10W
R075	1-216-214-00	RES,CHIP	4.7K	5%	1/8W	R214	1-216-061-91	RES,CHIP	3.3K	5%	1/10W
R077	1-216-082-00	RES,CHIP	24K	5%	1/10W	R215	1-216-061-91	RES,CHIP	3.3K	5%	1/10W
R082	1-216-013-91	RES,CHIP	33	5%	1/10W	R301	1-216-025-91	RES,CHIP	100	5%	1/10W
R083	1-216-176-91	RES,CHIP	120	5%	1/8W	R302	1-216-081-91	RES,CHIP	2.2K	5%	1/10W
R084	1-216-162-91	RES,CHIP	33	5%	1/8W	R303	1-216-073-00	RES,CHIP	10K	5%	1/10W
R085	1-216-176-91	RES,CHIP	120	5%	1/8W	R304	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R086	1-216-162-91	RES,CHIP	33	5%	1/8W	R306	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R087	1-216-027-91	RES,CHIP	120	5%	1/10W	R307	1-216-041-00	RES,CHIP	470	5%	1/10W
R088	1-216-214-91	RES,CHIP	4.7K	5%	1/8W	R308	1-216-049-91	RES,CHIP	1K	5%	1/10W
R089	1-216-081-00	RES,CHIP	22K	5%	1/10W	R309	1-216-675-91	METAL CHIP	10K	0.50%	1/10W
R090	1-216-206-00	RES,CHIP	2.2K	5%	1/8W	R310	1-216-022-00	RES,CHIP	75	5%	1/10W
R091	1-216-081-00	RES,CHIP	22K	5%	1/10W	R312	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R092	1-216-073-00	RES,CHIP	10K	5%	1/10W	R313	1-247-807-31	CARBON	100	5%	1/4W

REF. NO.	PART.NO	DESCRIPTION	REMARK	REF. NO.	PART.NO	DESCRIPTION	REMARK
R314	1-247-807-31	CARBON	100 5% 1/4W	R427	1-216-113-00	RES,CHIP	470K 5% 1/10W
R315	1-216-075-00	RES,CHIP	12K 5% 1/10W	R429	1-216-041-00	RES,CHIP	470 5% 1/10W
R316	1-216-025-91	RES,CHIP	100 5% 1/10W	R430	1-216-113-00	RES,CHIP	470K 5% 1/10W
R317	1-216-097-91	RES,CHIP	100K 5% 1/10W	R431	1-216-022-00	RES,CHIP	75 5% 1/10W
R318	1-412-002-31	INDUCTOR CHIP 4.7UH		R432	1-216-113-00	RES,CHIP	470K 5% 1/10W
R319	1-412-002-31	INDUCTOR CHIP 4.7UH		R435	1-216-022-00	RES,CHIP	75 5% 1/10W
R320	1-412-002-31	INDUCTOR CHIP 4.7UH		R437	1-216-022-00	RES,CHIP	75 5% 1/10W
R321	1-216-025-91	RES,CHIP	100 5% 1/10W	R439	1-216-041-00	RES,CHIP	470 5% 1/10W
R322	1-216-047-91	RES,CHIP	820 5% 1/10W	R440	1-216-113-00	RES,CHIP	470K 5% 1/10W
R323	1-216-025-91	RES,CHIP	100 5% 1/10W	R442	1-216-073-00	RES,CHIP	10K 5% 1/10W
R326	1-216-049-91	RES,CHIP	1K 5% 1/10W	R445	1-216-171-00	RES,CHIP	75 5% 1/8W
R327	1-216-295-91	SHORT	0	R446	1-216-113-00	RES,CHIP	470K 5% 1/10W
R328	1-216-049-91	RES,CHIP	1K 5% 1/10W	R448	1-216-113-00	RES,CHIP	470K 5% 1/10W
R329	1-216-031-00	RES,CHIP	180 5% 1/10W	R450	1-216-041-00	RES,CHIP	470 5% 1/10W
R330	1-216-089-91	RES,CHIP	47K 5% 1/10W	R454	1-216-041-00	RES,CHIP	470 5% 1/10W
R331	1-216-057-91	RES,CHIP	2.2K 5% 1/10W	R457	1-216-174-00	RES,CHIP	100 5% 1/8W
R332	1-216-206-00	RES,CHIP	2.2K 5% 1/8W	R459	1-247-807-31	CARBON	100 5% 1/4W
R333	1-216-206-00	RES,CHIP	2.2K 5% 1/8W	R460	1-249-403-11	CARBON	68 5% 1/4W
R334	1-216-025-91	RES,CHIP	100 5% 1/10W	R461	1-216-033-00	RES,CHIP	220 5% 1/10W
R335	1-216-025-91	RES,CHIP	100 5% 1/10W	R501	1-216-081-00	RES,CHIP	22K 5% 1/10W
R336	1-216-077-00	RES,CHIP	15K 5% 1/10W	R502	1-216-097-91	RES,CHIP	100K 5% 1/10W
R338	1-216-049-91	RES,CHIP	1K 5% 1/10W	R503	1-215-888-00	METAL OXIDE	220 5% 2W F
R339	1-216-081-00	RES,CHIP	22K 5% 1/10W	R504	1-249-385-11	CARBON	2.2 5% 1/4W F
R340	1-535-143-11	LEAD, JUMPER (10.0MM)		R505	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R341	1-535-143-11	LEAD, JUMPER (10.0MM)		R506	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R342	1-216-091-91	RES,CHIP	56K 5% 1/10W	R507	1-216-349-00	METAL OXIDE	1 5% 1W F
R401	1-216-113-00	RES,CHIP	470K 5% 1/10W	R508	1-216-675-91	METAL CHIP	10K 0.50% 1/10W
R402	1-216-295-91	SHORT	0	R509	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R403	1-216-041-00	RES,CHIP	470 5% 1/10W	R510	1-216-081-00	RES,CHIP	22K 5% 1/10W
R404	1-216-113-00	RES,CHIP	470K 5% 1/10W	R512	1-249-382-11	CARBON	1.2 5% 1/4W F
R406	1-216-113-00	RES,CHIP	470K 5% 1/10W	R513	1-216-097-91	RES,CHIP	100K 5% 1/10W
R407	1-216-295-91	SHORT	0	R514	1-249-377-11	CARBON	0.47 5% 1/4W F
R408	1-216-022-00	RES,CHIP	75 5% 1/10W	R515	1-249-377-11	CARBON	0.47 5% 1/4W F
R409	1-216-174-00	RES,CHIP	100 5% 1/8W	R516	1-249-493-11	CARBON	56K 5% 1/2W
R410	1-216-174-00	RES,CHIP	100 5% 1/8W	R517	1-247-869-91	CARBON	39K 5% 1/4W
R411	1-216-022-00	RES,CHIP	75 5% 1/10W	R518	1-216-661-91	FILM	2.7K 0.50% 1/10W
R412	1-216-174-00	RES,CHIP	100 5% 1/8W	R520	1-215-884-11	METAL OXIDE	47 5% 2W F
R413	1-216-295-91	SHORT	0	R521	1-216-123-11	RES,CHIP	1.2M 5% 1/10W
R414	1-216-022-00	RES,CHIP	75 5% 1/10W	R522	1-216-097-91	RES,CHIP	100K 5% 1/10W
R415	1-216-022-00	RES,CHIP	75 5% 1/10W	R523	1-216-117-00	RES,CHIP	680K 5% 1/10W
R416	1-216-022-00	RES,CHIP	75 5% 1/10W	R524	1-216-085-00	RES,CHIP	33K 5% 1/10W
R417	1-249-403-11	CARBON	68 5% 1/4W	R525	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R418	1-249-413-11	CARBON	470 5% 1/4W	R526	1-216-089-91	RES,CHIP	47K 5% 1/10W
R419	1-216-022-00	RES,CHIP	75 5% 1/10W	R527	1-216-079-91	RES,CHIP	18K 5% 1/10W
R420	1-216-041-00	RES,CHIP	470 5% 1/10W	R528	1-216-073-91	RES,CHIP	10K 5% 1/10W
R421	1-216-113-00	RES,CHIP	470K 5% 1/10W	R529	1-216-073-00	RES,CHIP	10K 5% 1/10W
R425	1-216-222-91	RES,CHIP	10K 5% 1/8W	R530	1-216-085-00	RES,CHIP	33K 5% 1/10W

REF.NO.	PART.NO	DESCRIPTION	REMARK
R531	1-216-057-00	RES,CHIP 2.2K 5%	1/10W
R532	1-216-075-91	RES,CHIP 12K 5%	1/10W
R533	1-216-081-00	RES,CHIP 22K 5%	1/10W
R539	1-216-049-91	RES,CHIP 1K 5%	1/10W
R540	1-215-886-11	METAL OXIDE 47 5%	2W F
R541	1-216-105-91	RES,CHIP 220K 5%	1/10W
R542	1-216-089-91	RES,CHIP 47K 5%	1/10W
R543	1-216-089-91	RES,CHIP 47K 5%	1/10W
R546	1-249-401-11	CARBON 47 5%	1/4W F
R547	1-535-303-00	LEAD, JUMPER (5.0MM)	
R548	1-212-849-00	FUSIBLE 4.7 5%	1/4W F
R549	1-216-371-21	METAL OXIDE 1.8 5%	2W F
R551	1-215-873-00	METAL OXIDE 4.7K 5%	1W F
R552	1-216-061-00	RES,CHIP 3.3K 5%	1/10W
R553	1-249-381-11	CARBON 1 5%	1/4W F
R571	1-249-417-11	CARBON 1K 5%	1/4W F
R572	1-216-369-00	METAL OXIDE 1 5%	2W F
R573	1-216-107-91	RES,CHIP 270K 5%	1/10W
R574	1-216-065-91	RES,CHIP 4.7K 5%	1/10W
R575	1-216-097-91	RES,CHIP 100K 5%	1/10W
R581	1-216-089-91	RES,CHIP 47K 5%	1/10W
R582	1-216-089-91	RES,CHIP 47K 5%	1/10W
R583	1-216-081-00	RES,CHIP 22K 5%	1/10W
R588	1-216-051-91	RES,CHIP 1.2K 5%	1/10W
R589	1-216-097-91	RES,CHIP 100K 5%	1/10W
R590	1-216-222-91	RES,CHIP 10K 5%	1/8W
R591	1-215-892-11	METAL OXIDE 1K 5%	2W F
R593	1-249-439-11	CARBON 68K 5%	1/4W
R594	1-216-057-00	RES,CHIP 2.2K 5%	1/10W
R595	1-249-377-11	CARBON 0.47 5%	1/4W F
R602	Δ 1-202-961-11	CEMENTED 1.8 5%	10W
R603	1-202-933-61	FUSIBLE 0.1 10%	1/2W F
R607	Δ 1-202-961-11	CEMENTED 1.8 5%	10W
R608	1-216-488-11	METAL OXIDE 18K 5%	3W F
R611	1-249-415-11	CARBON 680 5%	1/4W
R615	1-249-421-11	CARBON 2.2K 5%	1/4W
R616	1-216-393-00	METAL OXIDE 2.2 5%	3W F
R617	1-249-405-11	CARBON 100 5%	1/4W F
R619	1-216-190-91	RES,CHIP 470 5%	1/8W
R620	1-216-055-00	RES,CHIP 1.8K 5%	1/10W
R622	1-249-401-11	CARBON 47 5%	1/4W
R627	1-249-384-11	CARBON 1.8 5%	1/4W F
R628	1-247-791-91	CARBON 22 5%	1/4W
R632	Δ 1-240-030-91	METAL 4.7M 5%	1/2W
R634	Δ 1-240-030-91	METAL 4.7M 5%	1/2W
R651	Δ 1-220-926-11	FUSIBLE 0.47 10%	1/2W F
R652	1-216-393-00	METAL OXIDE 2.2 5%	3W F

REF.NO.	PART.NO	DESCRIPTION	REMARK
R653	1-216-393-00	METAL OXIDE 2.2 5%	3W F
R654	1-249-389-11	CARBON 4.7 5%	1/4W F
R658	1-215-929-11	METAL OXIDE 100K 5%	3W F
R659	1-216-384-11	METAL OXIDE 0.39 5%	3W F
R660	1-216-384-11	METAL OXIDE 0.39 5%	3W F
R661	1-247-843-11	CARBON 3.3K 5%	1/4W
R662	1-215-929-11	METAL OXIDE 100K 5%	3W F
R665	1-215-902-11	METAL OXIDE 47K 5%	2W F
R666	1-535-143-71	LEAD, JUMPER (7.5MM)	
R667	1-216-488-11	METAL OXIDE 18K 5%	3W F
< RELAY >			
RY601	Δ 1-755-266-11	RELAY, AC POWER	
< SWITCH >			
S001	1-571-532-21	SWITCH, TACTIL	
S002	1-571-532-21	SWITCH, TACTIL	
S003	1-571-532-21	SWITCH, TACTIL	
S004	1-571-532-21	SWITCH, TACTIL	
S005	1-571-532-21	SWITCH, TACTIL	
S006	1-571-532-21	SWITCH, TACTIL	
S601	Δ 1-571-433-21	SWITCH, PUSH (AC POWER)	
SW532	1-572-707-11	SWITCH, LEVER	
< TRANSFORMER >			
T511	Δ 1-453-314-21	TRANSFORMER ASSY, FLYBACK	
T531	1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE	
T601	Δ 1-427-962-11	TRANSFORMER, LINE FILTER	
T602	1-431-732-21	TRANSFORMER, CONVERTER (SRT)	
T603	Δ 1-433-933-11	TRANSFORMER, CONVERTER (SRT)	
< THERMISTOR >			
THP601	Δ 1-808-059-31	THERMISTOR, POSITIVE	
< VARISTOR >			
VDR601	Δ 1-801-268-41	VARISTOR TNR14V471K660	
	Δ *4-374-846-01	COVER, CAPACITOR, CAP TYPE (VDR601)	
< CRYSTAL >			
X001	1-578-774-11	VIBRATOR, CRYSTAL	
X302	1-567-505-11	OSCILLATOR, CRYSTAL	
X303	1-567-504-11	OSCILLATOR, CRYSTAL	

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
A Board Variant Parts KV-21FX20A/21FX20D/21FX20E KV-21FX20K/21FX20R				A Board Variant Parts KV-21FX20B			
< CAPACITOR >				< TUNER >			
C111	1-216-296-91	SHORT	0	R160	1-216-049-91	RES,CHIP 1K	5% 1/10W
C123	1-102-108-00	CERAMIC	150PF 10% 50V	R161	1-216-021-00	RES,CHIP 68	5% 1/10W
	1-102-976-00	CERAMIC	180PF 5% 50V	< CAPACITOR >			
		(KV-21FX20A/21FX20D/21FX20E)		TU101	8-598-432-10	TUNER (BTP-AC411)	
		(KV-21FX20K/21FX20R)		< CAPACITOR >			
C124	1-104-664-11	ELECT	47MF 20% 25V	C100	1-163-038-91	CERAMIC CHIP 0.1MF	25V
C125	1-101-880-00	CERAMIC	47PF 5% 50V	C111	1-163-059-00	CERAMIC CHIP 0.01MF	50V
C132	1-102-525-11	CERAMIC	68PF 5% 50V	C121	1-163-031-11	CERAMIC CHIP 0.01MF	50V
		(KV-21FX20A/21FX20D/21FX20E)		C133	1-162-638-11	CERAMIC CHIP 1MF	16V
	1-101-880-00	CERAMIC	47PF 5% 50V	C140	1-104-664-11	ELECT 47MF 20% 16V	
		(KV-21FX20K/21FX20R)		C606	1-125-318-00	ELECT(BLOCK) 220MF 20% 400V	
C606	1-125-318-00	ELECT(BLOCK) 220MF 20% 400V		< FILTER >			
		(KV-21FX20A/21FX20D/21FX20E/21FX20K)		CF105	1-760-154-11	TRAP, CERAMIC	
	1-117-751-11	ELECT(BLOCK) 220MF 20% 450V		SWF101	1-579-273-11	FILTER, SURFACE WAVE	
		(KV-21FX20R)		SWF103	1-767-083-11	FILTER, SURFACE WAVE	
< FILTER >				< DIODE >			
SWF101	1-767-874-11	FILTER, SURFACE WAVE		D102	8-719-050-59	DIODE BA592-GEG	
		(KV-21FX20A/21FX20D/21FX20E)		D104	8-719-914-43	DIODE DAN202K	
	1-579-273-11	FILTER, SURFACE WAVE (KV-21FX20K/21FX20R)		< IC >			
< IC >				IC101	8-759-466-47	IC TDA9818/V1	
IC101	8-759-466-49	IC TDA9817/V1		< COIL >			
< COIL >				L108	1-410-985-42	INDUCTOR CHIP 0.22UH	
L105	1-408-603-31	INDUCTOR 10UH		L109	1-410-789-11	INDUCTOR 0.47UH	
L538	1-419-263-11	COIL, FILTER WITH CORE		L117	1-412-002-42	INDUCTOR CHIP 4.7UH	
< TRANSISTOR >				L538	1-459-390-00	INDUCTOR 390UH	
Q108	8-729-120-28	TRANSISTOR 2SC2412K-146-R		< TRANSISTOR >			
Q160	8-729-422-33	TRANSISTOR 2PD601AR-115		Q102	8-729-920-72	TRANSISTOR 2SA1037K-T-146-QR	
< RESISTOR >				Q104	1-801-806-11	TRANSISTOR DTC144EKA	
JR113	1-216-295-91	SHORT	0	Q107	8-729-022-54	TRANSISTOR 2SC3779C,D-AA	
R114	1-216-295-91	SHORT	0	Q109	1-801-806-11	TRANSISTOR DTC144EKA	
R133	1-216-295-91	SHORT	0	Q110	1-801-806-11	TRANSISTOR DTC144EKA	
R137	1-216-035-00	RES,CHIP	270 5% 1/10W	< RESISTOR >			
R138	1-216-097-91	RES,CHIP	100K 5% 1/10W	JR130	1-216-296-91	SHORT	0
R139	1-216-093-91	RES,CHIP	68K 5% 1/10W	R109	1-216-061-00	RES,CHIP 3.3K 5% 1/10W	
R140	1-216-035-00	RES,CHIP	270 5% 1/10W	R110	1-216-200-11	RES,CHIP 1.2K 5% 1/8W	
R141	1-216-043-91	RES,CHIP	560 5% 1/10W				
R159	1-247-843-11	CARBON	3.3K 5% 1/4W				

REF. NO.	PART.NO	DESCRIPTION	REMARK			REF. NO.	PART.NO	DESCRIPTION	REMARK		
R111	1-216-053-00	RES,CHIP	1.5K	5%	1/10W	C718	1-102-114-00	CERAMIC	470PF	10%	50V
R112	1-216-053-00	RES,CHIP	1.5K	5%	1/10W	C719	1-102-114-00	CERAMIC	470PF	10%	50V
R113	1-216-029-91	RES,CHIP	150	5%	1/10W	C1701	1-104-665-11	ELECT	100MF	20%	16V
R114	1-216-041-91	RES,CHIP	470	5%	1/10W	C1702	1-102-514-11	CERAMIC	22PF	5%	50V
R123	1-216-037-00	RES,CHIP	330	5%	1/10W	C1704	1-136-153-00	FILM	0.01MF	5%	50V
R127	1-216-031-00	RES,CHIP	180	5%	1/10W	C1705	1-102-822-00	CERAMIC	390PF	5%	50V
R128	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	C1706	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
R129	1-216-063-91	RES,CHIP	3.9K	5%	1/10W	C1707	1-126-964-11	ELECT	10MF	20%	50V
R137	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	C1708	1-136-153-00	FILM	0.01MF	5%	50V
R138	1-216-689-11	RES,CHIP	39K	5%	1/10W	C1709	1-126-964-11	ELECT	10MF	20%	50V
R139	1-216-075-00	RES,CHIP	12K	5%	1/10W	C1710	1-107-927-11	ELECT	3.3MF	20%	100V
R140	1-216-081-91	RES,CHIP	22K	5%	1/10W	C1711	1-107-927-11	ELECT	3.3MF	20%	100V
R141	1-216-295-91	SHORT	0			C1712	1-136-153-00	FILM	0.01MF	5%	50V
R142	1-216-043-91	RES,CHIP	560	5%	1/10W	C1713	1-104-664-11	ELECT	47MF	20%	25V
R147	1-216-017-91	RES,CHIP	47	5%	1/10W	C1715	1-136-165-00	FILM	0.1MF	5%	50V
R148	1-216-174-00	RES,CHIP	100	5%	1/8W	C1716	1-107-932-11	ELECT	47MF	20%	100V
R149	1-216-049-91	RES,CHIP	1K	5%	1/10W	C1717	1-104-664-11	ELECT	47MF	20%	25V
R152	1-216-025-91	RES,CHIP	100	5%	1/10W	C1803	1-101-005-00	CERAMIC	0.022MF		50V
R156	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	C1804	1-126-964-11	ELECT	10MF	20%	50V
R157	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	C1805	1-137-366-11	FILM	0.0022MF	5%	50V
R158	1-216-025-91	RES,CHIP	100	5%	1/10W	< CONNECTOR >					
R160	1-216-295-91	SHORT	0			CN702	1-695-915-11	TAB (CONTACT)			
R161	1-216-295-91	SHORT	0			CN703	*1-564-509-11	PLUG, CONNECTOR 6P			
< VARIABLE RESISTOR >						CN704	4-352-844-01	PIN, LEAD, COATING			
RV101	1-241-765-11	RES, ADJ, CARBON 22K				CN707	*1-564-508-11	PLUG, CONNECTOR 5P			
< TUNER >						CN1703	*1-564-506-11	PLUG, CONNECTOR 3P			
TU101	1-693-418-11	TUNER (TELE9-001A)				CN1705	*1-564-511-11	PLUG, CONNECTOR 8P			
						CN1801	*1-564-506-11	PLUG, CONNECTOR 3P			
						< DIODE >					
*A-1638-130-A CVM Board, Complete						D702	8-719-991-33	DIODE 1SS133T-77			
						D703	8-719-991-33	DIODE 1SS133T-77			
						D704	8-719-991-33	DIODE 1SS133T-77			
						D705	8-719-991-33	DIODE 1SS133T-77			
						D706	8-719-991-33	DIODE 1SS133T-77			
C701	1-137-043-91	FILM	0.0047MF	10%	400V	D707	8-719-991-33	DIODE 1SS133T-77			
C702	1-102-525-11	CERAMIC	68PF	5%	50V	D708	8-719-991-33	DIODE 1SS133T-77			
C703	1-102-525-11	CERAMIC	68PF	5%	50V	D709	8-719-991-33	DIODE 1SS133T-77			
C704	1-101-004-00	CERAMIC	0.01MF		50V	D710	8-719-991-33	DIODE 1SS133T-77			
C705	1-101-004-00	CERAMIC	0.01MF		50V	D711	8-719-991-33	DIODE 1SS133T-77			
C706	1-102-074-91	CERAMIC	0.001MF	10%	50V	D712	8-719-991-33	DIODE 1SS133T-77			
C707	1-102-074-00	CERAMIC	0.001MF	10%	50V	D714	8-719-991-33	DIODE 1SS133T-77			
C708	1-162-114-00	CERAMIC	0.0047MF		2KV	D715	8-719-991-33	DIODE 1SS133T-77			
C709	1-102-074-00	CERAMIC	0.001MF	10%	50V	D716	8-719-991-33	DIODE 1SS133T-77			
C710	1-136-189-00	FILM	0.1MF	10%	250V	D717	8-719-991-33	DIODE 1SS133T-77			
C712	1-102-109-00	CERAMIC	180PF	10%	50V	D718	8-719-991-33	DIODE 1SS133T-77			
C713	1-101-004-00	CERAMIC	0.01MF		50V						
C714	1-104-665-11	ELECT	100MF	20%	16V						
C717	1-102-114-00	CERAMIC	470PF	10%	50V						

The components identified by shading and marked Δ are critical for safety
Replace only with the part number specified.

CVM

REF. NO.	PART.NO	DESCRIPTION	REMARK	REF. NO.	PART.NO	DESCRIPTION	REMARK
D719	8-719-991-33	DIODE 1SS133T-77		Q713	8-729-046-28	TRANSISTOR BF420-126	
D721	8-719-991-33	DIODE 1SS133T-77		Q714	8-729-026-39	TRANSISTOR 2SA933AS-QT	
D722	8-719-991-33	DIODE 1SS133T-77		Q715	8-729-200-17	TRANSISTOR 2SA1091-O	
D1703	8-719-991-33	DIODE 1SS133T-77		Q716	8-729-200-17	TRANSISTOR 2SA1091-O	
D1704	1-535-303-00	LEAD, JUMPER (5.0MM)		Q717	8-729-200-17	TRANSISTOR 2SA1091-O	
D1705	1-535-303-00	LEAD, JUMPER (5.0MM)		Q1701	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D1706	8-719-991-33	DIODE 1SS133T-77		Q1702	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D1707	8-719-991-33	DIODE 1SS133T-77		Q1703	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D1708	1-535-143-11	DIODE LEAD, JUMPER (10.0MM)		Q1704	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D1709	8-719-055-76	DIODE LEAD, JUMPER (10.0MM)		Q1705	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D1710	8-719-982-03	DIODE MTZJ-3.6A		Q1706	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D1711	8-719-982-03	DIODE MTZJ-3.6A		Q1707	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D1801	8-719-110-17	DIODE RD10ESB2		Q1708	8-729-026-39	TRANSISTOR 2SA933AS-QT	
D1802	8-719-110-17	DIODE RD10ESB2		Q1709	8-729-049-09	TRANSISTOR BC327-25	
D1803	8-719-110-17	DIODE RD10ESB2		Q1710	8-729-049-10	TRANSISTOR BC337-25	
< FERRITE BEAD >				Q1711	8-729-049-30	TRANSISTOR BD830	
FB1701	1-412-911-11	FERRITE	0UH	Q1712	8-729-049-29	TRANSISTOR BD829	
< IC >				< RESISTOR >			
IC1801	8-759-603-37	IC M5216P		R701	1-247-895-91	CARBON 470K 5%	1/4W
< JACK >				R702	1-216-464-11	METAL OXIDE 18K 5%	2W F
J701	Δ 1-251-595-11	SOCKET, CRT		R703	1-249-405-11	CARBON 100 5%	1/4W F
< COIL >				R704	1-216-349-00	METAL OXIDE 1 5%	1W F
L703	1-408-591-11	INDUCTOR 1UH		R705	1-249-931-11	CARBON 2.2K 5%	1/4W F
L704	1-414-183-41	INDUCTOR 10UH		R706	1-247-815-91	CARBON 220 5%	1/4W
L1701	1-414-183-41	INDUCTOR 10UH		R707	1-249-412-11	CARBON 390 5%	1/4W
L1702	1-414-183-41	INDUCTOR 10UH		R708	1-249-401-11	CARBON 47 5%	1/4W
L1703	1-410-665-31	INDUCTOR 15UH		R710	1-247-895-91	CARBON 470K 5%	1/4W
L1704	1-414-185-41	INDUCTOR 22UH		R712	1-249-931-11	CARBON 2.2K 5%	1/4W F
< TRANSISTOR >				R713	1-247-903-00	CARBON 1M 5%	1/4W
Q701	8-729-046-28	TRANSISTOR BF420-126		R714	1-216-464-11	METAL OXIDE 18K 5%	2W F
Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE		R715	1-249-405-11	CARBON 100 5%	1/4W F
Q703	8-729-046-28	TRANSISTOR BF420-126		R716	1-247-815-91	CARBON 220 5%	1/4W
Q704	8-729-200-17	TRANSISTOR 2SA1091-O		R717	1-249-412-11	CARBON 390 5%	1/4W
Q705	8-729-119-78	TRANSISTOR 2SC2785-HFE		R718	1-202-814-11	SOLID 33K 10%	1/2W
Q706	8-729-046-28	TRANSISTOR BF420-126		R719	1-249-401-11	CARBON 47 5%	1/4W
Q707	8-729-200-17	TRANSISTOR 2SA1091-O		R720	1-249-429-11	CARBON 10K 5%	1/4W
Q708	8-729-119-78	TRANSISTOR 2SC2785-HFE		R721	1-249-405-11	CARBON 100 5%	1/4W F
Q709	8-729-046-28	TRANSISTOR BF420-126		R725	1-249-425-11	CARBON 4.7K 5%	1/4W
Q710	8-729-200-17	TRANSISTOR 2SA1091-O		R726	1-249-931-11	CARBON 2.2K 5%	1/4W F
Q711	8-729-119-78	TRANSISTOR 2SC2785-HFE		R727	1-247-815-91	CARBON 220 5%	1/4W
Q712	8-729-046-28	TRANSISTOR BF420-126		R728	1-216-374-00	METAL OXIDE 2.7 5%	2W F
				R729	1-249-412-11	CARBON 390 5%	1/4W
				R733	1-249-437-11	CARBON 47K 5%	1/4W
				R734	1-247-807-31	CARBON 100 5%	1/4W
				R736	1-216-464-11	METAL OXIDE 18K 5%	2W F
				R741	1-202-549-00	SOLID 100 20%	1/2W

REF.NO.	PART.NO	DESCRIPTION	REMARK		
R746	1-249-417-11	CARBON	1K	5%	1/4W
R750	1-249-417-11	CARBON	1K	5%	1/4W
R751	1-249-417-11	CARBON	1K	5%	1/4W
R1701	1-249-413-11	CARBON	470	5%	1/4W
R1702	1-247-807-31	CARBON	100	5%	1/4W
R1703	1-247-843-11	CARBON	3.3K	5%	1/4W
R1704	1-249-418-11	CARBON	1.2K	5%	1/4W
R1705	1-249-408-11	CARBON	180	5%	1/4W
R1706	1-249-408-11	CARBON	180	5%	1/4W
R1707	1-249-414-11	CARBON	560	5%	1/4W
R1708	1-249-413-11	CARBON	470	5%	1/4W
R1709	1-247-807-31	CARBON	100	5%	1/4W
R1710	1-249-421-11	CARBON	2.2K	5%	1/4W
R1711	1-249-425-11	CARBON	4.7K	5%	1/4W
R1712	1-249-413-11	CARBON	470	5%	1/4W
R1713	1-249-425-11	CARBON	4.7K	5%	1/4W
R1714	1-249-402-11	CARBON	56	5%	1/4W
R1715	1-247-807-31	CARBON	100	5%	1/4W
R1716	1-249-408-11	CARBON	180	5%	1/4W
R1717	1-249-418-11	CARBON	1.2K	5%	1/4W
R1718	1-260-091-11	CARBON	220	5%	1/2W
R1719	1-247-843-11	CARBON	3.3K	5%	1/4W
R1720	1-249-441-11	CARBON	100K	5%	1/4W
R1721	1-247-843-11	CARBON	3.3K	5%	1/4W
R1722	1-249-417-11	CARBON	1K	5%	1/4W
R1723	1-247-863-91	CARBON	22K	5%	1/4W
R1724	1-247-863-91	CARBON	22K	5%	1/4W
R1725	1-249-417-11	CARBON	1K	5%	1/4W
R1726	1-247-831-91	CARBON	1K	5%	1/4W
R1727	1-247-807-31	CARBON	100	5%	1/4W
R1728	1-247-807-31	CARBON	100	5%	1/4W
R1729	1-249-389-11	CARBON	4.7	5%	1/4W
R1730	1-249-389-11	CARBON	4.7	5%	1/4W
R1731	1-215-895-11	METAL OXIDE	3.3K	5%	2W F
R1732	1-215-867-00	METAL OXIDE	470	5%	1W F
R1805	1-249-429-11	CARBON	10K	5%	1/4W
R1806	1-247-899-11	CARBON	680K	5%	1/4W
R1807	1-249-429-11	CARBON	10K	5%	1/4W
R1808	1-249-429-11	CARBON	10K	5%	1/4W
R1809	1-249-429-11	CARBON	10K	5%	1/4W
R1810	1-249-429-11	CARBON	10K	5%	1/4W
< VARIABLE RESISTOR >					
RV702	1-241-656-21	RES, ADJ, METAL FILM 110M			

REF.NO.	PART.NO	DESCRIPTION	REMARK		
*A-1654-041-A S1 Board, Complete (KV-21FX20A/21FX20D/21FX20R) *A-1654-039-A S1 Board, Complete (KV-21FX20B) *A-1654-040-A S1 Board, Complete (KV-21FX20E/21FX20K)					
S1 Board Common Parts					
< CAPACITOR >					
C1103	1-115-185-11	CERAMIC CHIP 0.033MF	10%	50V	
C1106	1-115-185-11	CERAMIC CHIP 0.033MF	10%	50V	
C1107	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V	
C1108	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V	
C1109	1-104-664-11	ELECT 47MF	20%	25V	
C1110	1-126-960-11	ELECT 1MF	20%	50V	
C1111	1-126-960-11	ELECT 1MF	20%	50V	
C1113	1-104-664-11	ELECT 47MF	20%	25V	
C1115	1-104-664-11	ELECT 47MF	20%	25V	
C1116	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V	
C1117	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V	
C1118	1-164-005-11	CERAMIC CHIP 0.47MF		25V	
C1119	1-126-960-11	ELECT 1MF	20%	50V	
C1120	1-164-005-11	CERAMIC CHIP 0.47MF		25V	
C1122	1-104-664-11	ELECT 47MF	20%	25V	
C1123	1-163-038-91	CERAMIC CHIP 0.1MF		25V	
C1124	1-163-251-11	CERAMIC CHIP 100PF	5%	50V	
C1127	1-126-960-11	ELECT 1MF	20%	50V	
C1128	1-126-960-11	ELECT 1MF	20%	50V	
C1129	1-126-960-11	ELECT 1MF	20%	50V	
C1130	1-126-964-11	ELECT 10MF	20%	50V	
C1132	1-104-664-11	ELECT 47MF	20%	25V	
C1133	1-163-038-91	CERAMIC CHIP 0.1MF		25V	
C1134	1-126-964-11	ELECT 10MF	20%	50V	
C1136	1-126-964-11	ELECT 10MF	20%	50V	
C1139	1-126-964-11	ELECT 10MF	20%	50V	
C1143	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V	
C1144	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V	
C1145	1-163-038-91	CERAMIC CHIP 0.1MF		25V	
C1146	1-164-005-11	CERAMIC CHIP 0.47MF		25V	
C1147	1-164-005-11	CERAMIC CHIP 0.47MF		25V	
C1148	1-164-005-11	CERAMIC CHIP 0.47MF		25V	
C1149	1-126-964-11	ELECT 10MF	20%	50V	
C1150	1-126-964-11	ELECT 10MF	20%	50V	
C1151	1-126-960-91	ELECT 1MF	20%	50V	
C1152	1-163-038-91	CERAMIC CHIP 0.1MF		25V	

REF.NO.	PART.NO	DESCRIPTION	REMARK	REF.NO.	PART.NO	DESCRIPTION	REMARK
< CONNECTOR >				R1177	1-216-085-00	RES,CHIP 33K 5% 1/10W	
CN1101	*1-766-954-11	CONNECTOR, BOARD TO BOARD 20P		R1178	1-216-073-00	RES,CHIP 10K 5% 1/10W	
< DIODE >				< CRYSTAL >			
D1107	8-719-069-60	DIODE UDZS-TE17-9.1B		X1101	1-767-813-21	VIBRATOR, CRYSTAL	
D1108	8-719-069-60	DIODE UDZS-TE17-9.1B		S1 Board Variant Parts KV-21FX20A/21FX20D/21FX20E/ KV-21FX20K/21FX20R			
D1109	8-719-069-55	DIODE UDZS-TE17-5.6B					
D1110	8-719-069-55	DIODE UDZS-TE17-5.6B		< IC >			
< FERRITE BEAD >				IC1101	8-759-574-74	IC TDA9870A (KV-21FX20A/21FX20D/21FX20R)	
FB1101	1-410-396-41	FERRITE 0.45UH			8-759-574-73	IC TDA9875A (KV-21FX20E/21FX20K)	
FB1102	1-410-396-41	FERRITE 0.45UH		< RESISTOR >			
FB1104	1-410-396-41	FERRITE 0.45UH		R1164	1-216-073-00	RES,CHIP 10K 5% 1/10W	
FB1110	1-412-002-31	INDUCTOR CHIP 4.7UH				(KV-21FX20E/21FX20K)	
FB1111	1-412-002-31	INDUCTOR CHIP 4.7UH		R1165	1-216-295-91	SHORT 0 (KV-21FX20A/21FX20D/21FX20R)	
FB1112	1-412-002-31	INDUCTOR CHIP 4.7UH		S1 Board Variant Parts KV-21FX20B			
< IC >							
IC1102	8-759-100-96	IC UPC4558G2		< CAPACITOR >			
IC1103	8-759-394-57	IC PST593C-MMP-4P		C1131	1-164-005-11	CERAMIC CHIP 0.47MF 25V	
< COIL >				C1135	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
L1114	1-410-671-31	INDUCTOR 47UH		C1137	1-104-664-11	ELECT 47MF 20% 25V	
L1115	1-408-599-31	INDUCTOR 4.7UH		C1138	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
L1116	1-408-599-31	INDUCTOR 4.7UH		< FILTER >			
< RESISTOR >				CF1101	1-409-327-00	TRAP, CERAMIC (6.5MHZ)	
R1101	1-216-073-00	RES,CHIP 10K 5% 1/10W		< FERRITE BEAD >			
R1102	1-216-073-00	RES,CHIP 10K 5% 1/10W		FB1113	1-412-002-31	INDUCTOR CHIP 4.7UH	
R1103	1-216-025-91	RES,CHIP 100 5% 1/10W		< IC >			
R1104	1-216-025-91	RES,CHIP 100 5% 1/10W		IC1101	8-759-574-73	IC TDA9875A	
R1105	1-216-035-00	RES,CHIP 270 5% 1/10W		< COIL >			
R1110	1-216-025-91	RES,CHIP 100 5% 1/10W		L1113	1-408-600-31	INDUCTOR 5.6UH	
R1111	1-216-025-91	RES,CHIP 100 5% 1/10W		L1117	1-410-671-31	INDUCTOR 47UH	
R1113	1-216-073-00	RES,CHIP 10K 5% 1/10W		< TRANSISTOR >			
R1121	1-216-065-91	RES,CHIP 4.7K 5% 1/10W		Q1112	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
R1122	1-216-065-91	RES,CHIP 4.7K 5% 1/10W		Q1113	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
R1123	1-216-218-00	RES,CHIP 6.8K 5% 1/8W		Q1114	8-729-026-49	TRANSISTOR 2SA1037AK	
R1124	1-216-073-00	RES,CHIP 10K 5% 1/10W		Q1115	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
R1125	1-216-069-00	RES,CHIP 6.8K 5% 1/10W					
R1126	1-216-073-00	RES,CHIP 10K 5% 1/10W					
R1155	1-216-085-00	RES,CHIP 33K 5% 1/10W					
R1156	1-216-085-00	RES,CHIP 33K 5% 1/10W					
R1174	1-216-085-00	RES,CHIP 33K 5% 1/10W					
R1175	1-216-085-00	RES,CHIP 33K 5% 1/10W					
R1176	1-216-085-00	RES,CHIP 33K 5% 1/10W					

REF. NO.	PART.NO	DESCRIPTION	REMARK		
< RESISTOR >					
R1108	1-216-077-00	RES,CHIP	15K	5%	1/10W
R1152	1-216-035-00	RES,CHIP	270	5%	1/10W
R1153	1-216-025-91	RES,CHIP	100	5%	1/10W
R1154	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R1160	1-216-081-00	RES,CHIP	22K	5%	1/10W
R1161	1-216-041-00	RES,CHIP	470	5%	1/10W
R1162	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R1163	1-216-081-00	RES,CHIP	22K	5%	1/10W
R1164	1-216-073-00	RES,CHIP	10K	5%	1/10W
R1167	1-216-025-91	RES,CHIP	100	5%	1/10W
R1168	1-216-033-00	RES,CHIP	220	5%	1/10W
R1169	1-216-049-91	RES,CHIP	1K	5%	1/10W
R1170	1-216-001-00	RES,CHIP	10	5%	1/10W
R1171	1-216-045-00	RES,CHIP	680	5%	1/10W
R1172	1-216-041-00	RES,CHIP	470	5%	1/10W
R1173	1-216-049-91	RES,CHIP	1K	5%	1/10W

REF. NO.	PART. NO	DESCRIPTION	REMARK
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MISCELLANEOUS

Δ	1-419-187-11	COIL, DEGAUSSING
	1-452-032-00	MAGNET, DISC; 10MM
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM
	1-452-728-61	COIL, NA ROTATION (RT-154)
Δ	1-453-314-21	TRANSFORMER ASSY, FLYBACK
	1-505-924-11	SPEAKER (15x6.5CM)
Δ	1-251-317-31	CAP ASSY, HIGH-VOLTAGE
Δ	1-571-433-21	SWITCH, PUSH (AC POWER)
Δ	1-765-286-11	CORD, POWER
	8-598-432-10	TUNER (BTP-AC411) (KV-21FX20A/21FX20D/21FX20E/21FX20K/21FX20R)
	1-693-418-11	TUNER (TELE9-001A) (KV-21FX20B)
Δ	8-738-809-05	PICTURE TUBE (A51LPT70X) SD-313
Δ	8-451-494-21	DEFLECTION YOKE (Y21RSA-S)

ACCESSORIES AND PACKAGING MATERIALS

*4-042-477-01	BAG, PROTECTION
*4-204-898-01	INDIVIDUAL CARTON
*4-204-892-01	CUSHION (UPPER) (ASSY)
*4-204-895-01	CUSHION (LOWER) (ASSY)
4-204-905-41	MANUAL INSTRUCTION (KV-21FX20A) (ITALIAN)
4-204-905-51	MANUAL INSTRUCTION (KV-21FX20B) (FRENCH/ITALIAN/GERMAN/DUTCH)
4-204-905-11	MANUAL INSTRUCTION (KV-21FX20D) (ENGLISH/GERMAN/GREEK/TURKISH)
4-204-905-71	MANUAL INSTRUCTION (KV-21FX20E) (SPANISH)
4-204-905-81	MANUAL INSTRUCTION (KV-21FX20E) (FINNISH/NORWEGIAN/PORTUGUESE/DANISH/ SWEDISH)
4-204-905-91	MANUAL INSTRUCTION (KV-21FX20K) (ENGLISH/POLISH/HUNGARIAN)
4-204-906-91	MANUAL INSTRUCTION (KV-21FX20R) (ENGLISH/RUSSIAN/BULGARIAN)

REMOTE COMMANDER

1-418-476-11	REMOTE COMMANDER (RM-887)
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